

Exhibit 12 Part 11

Part 2 of Attachment L to the Allocation Recommendation Report (ARR2107-ARR2200)

United States' Motion to Enter Consent Decree,
United States v. Alden Leeds, Inc. et al., Civil Action No. 22-7326 (D.N.J.)

Allocation Facility Cmass Calculation

BASF Corporation

50 Central Avenue

Kearny

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07032

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Lead	100.00%	-	100.00%	-	0.00%	2,286.14	100.00%	61.2	61.19	1.018817E-2	0.62
Mercury	100.00%	3.87	100.00%	-	0.00%	1,146.50	100.00%	30.7	34.59	1.018817E-2	0.35
HPAHs	100.00%	65.46	100.00%	-	0.00%	1,193.37	100.00%	31.8	97.28	1.018817E-2	0.99
LPAHs	100.00%	197.28	100.00%	-	0.00%	4,876.34	100.00%	130.5	327.8	1.018817E-2	3.34
PCBs	100.00%	281.88	100.00%	-	0.00%	-	100.00%	-	281.88	1.018817E-2	2.87
DDx	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

BASF Corporation

50 Central Avenue

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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0	0	0
Lead	0.01	3,200,000.00	0.62	1.948E-7	1.948E-9
Mercury	0.95	42,000.00	0.35	8.390E-6	7.970E-6
HPAHs	0.05	240,000.00	0.99	4.130E-6	2.065E-7
LPAHs	0.01	170,000.00	3.34	1.965E-5	1.965E-7
PCBs	12.87	26,000.00	2.87	1.105E-4	1.422E-3
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calculation

BASF Corporation

50 Central Avenue

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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	0	0	0	0	0
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	2.120E-4	0.62	677.9	2.120E-4	2.120E-6
Mercury	0.95	42,000.00	4,322.53	41,955.96	8.002E-3	0.35	335.71	8.002E-3	7.602E-3
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	2.238E-5	0.99	4.38	2.238E-5	1.119E-6
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	1.088E-4	3.34	15.16	1.088E-4	1.088E-6
PCBs	12.87	26,000.00	20,066.54	25,795.56	1.405E-2	2.87	362.36	1.405E-2	1.808E-1
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

BASF Corporation

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Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
430,200	gal discharged per day PAP00058130, PAP00060973, PAS00054118	1971 PVSC Waste Effluent Survey
	# hours/ per day discharged	1973 Industrial Waste Contribution to Municipal System
5	#days/ week discharged	1980 EPA Questionnaire Form
52	#weeks/ yr discharged	1988 Baseline Monitoring Report
111,852,000	calc gal/yr discharge	1989 BASF Letter to NJDEP
1936	Yr Ops started	Discharge to Kearny POTW then PVSC (permit started in 1989)
1990	Yr Ops ceased	
54	calc #yrs facility operated	
Copper (Cu)		
54	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
54	#yrs facility discharged	1973 Industrial Waste Contribution to Municipal System
0.100	calc mg/L COC discharged PAP00060973, PAS00054118	1988 Baseline Monitoring Report
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
2,286.14	calc kg COC discharged	
Mercury (Hg)		1973 Industrial Waste Contribution to Municipal System
54	#yrs facility discharged	1988 Baseline Monitoring Report
0.0502	calc mg/L COC discharged PAP00060973, PAS00054118	Mercury discharge concentration based on average of 1973 (.0003 mg/l) and 1988 (0.100 mg/l) reports.
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
1,146.50	calc kg COC discharged	
HPAhs		
54	#yrs facility discharged	
-	calc mg/L O&G	
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAhs	1988 Baseline Monitoring Report
0.052	calc mg/L HPAhs PAP00060951	Flouranthene = 24.7 ug/l
3.785	L per gallon (Merck Index)	Pyrene = 27.5 ug/l
0.000001	kg per mg (Merck Index)	
1,193.37	calc kg COC discharged	
LPAHs		
54	#yrs facility discharged	
-	calc mg/L O&G	
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	1988 Baseline Monitoring Report
0.2133	calc mg/L LPAHs	Anthracene = 213.3 ug/l
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
4,876.34	calc kg COC discharged	
PCBs		
42	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
33	#yrs facility discharged within DDX Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
38	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
54	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
45	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
41	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
26	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
-	kg Copper	
2,286.14	kg Lead	
1,146.50	kg Mercury	
1,193.37	kg HPAhs	
4,876.34	kg LPAHs	
-	kg PCBs	
-	kg DDX	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	Discharged wastewater to sanitary sewer or incinerated on site. Storm water contained onsite to evaporate or be absorbed to ground
	# days/week discharged	
	# weeks/yr discharged	
17,962,561	# gals/yr directly discharged	NJPDES Permit for discharge to Newark Bay/Passaic from 1979-1988. Flow rate calculated based on 30 year average annual precipitation data per Rutgers Univ, and acreage with a 50% reduction in volume that reaches the Passaic River due to evaporation or soil infiltration.
4.08	ft; 30yr average annual precipitation per Rutgers information	COC information used same as for discharge to PVSC
27	acres	
43,560	ft2 per acre	
1979	Yr Ops started	
1988	Yr Ops ceased	
9	calc #yrs facility operated	
Copper (Cu)		
9	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
9	#yrs facility discharged	
0.10	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
61	calc kg COC discharged	
Mercury (Hg)		1973 Industrial Waste Contribution to Municipal System
9	#yrs facility discharged	1988 Baseline Monitoring Report
0.0502	calc mg/L COC discharged	Mercury discharge concentration based on average of 1973 (.0003 mg/l) and 1988 (0.100 mg/l) reports.
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
31	calc kg COC discharged	
HPAHs		
9	#yrs facility discharged	
0.0520	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
31.8185	calc kg COC discharged	
LPAHs		
9	#yrs facility discharged	
0.2133	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
130.5171	calc kg COC discharged	
PCBs		-1 #yrs facility discharged within PCBs Timeline
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		-6 #yrs facility discharged within DDx Timeline
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		9 #yrs facility discharged within Dieldrin Timeline
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		9 #yrs facility discharged
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		10 #yrs facility discharged within 2,4-D Timeline
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		7 #yrs facility discharged within 2,4,5-T Timeline
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		-3 #yrs facility discharged within 2,4,6-TCP Timeline
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
-	kg Copper	
61.1895	kg Lead	
30.7171	kg Mercury	
31.8185	kg HPAHs	
130.5171	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

DISCHARGE CALCULATIONS	DIRECT DISCHARGE INFORMATION	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
4.08 FEET/YEAR AVERAGE PRECIPITATION		Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University.
27 ACRES - TOTAL SITE AREA (acres)		FDR, page 1; confirmed with Google Earth	
18 ACRES - AFFECTED AREA	4,046.86 METERS ² /ACRE	FDR, page 1; Approximately 1/3 of the site or less historically (until 1969) covered with buildings (PAP-00061717)	
72,843 METERS ² (AFFECTED AREA)			
0.0001 METERS/YEAR (ERODED SOIL THICKNESS)		For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
7 METERS ³ /YEAR (ERODED SOIL VOLUME)		VOLUME/YEAR DISCHARGED	
1936 Year site operations began		FDR, page 1	
2008 Year site was sold		Operator: 1936-1990 Owner: 1936-2008	
72 NUMBER YEARS DISCHARGE			
524 METERS ³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)			
1,843 KG/M ³ SOIL DENSITY		Overburden soil at the site consists of fill material (black to dark brown silty sand, silt, and clay) (PAP-00062541). Bulk density range 1410 KG/M ³ to 2275 KG/M ³ , so use average. (http://structx.com/Soil_Properties_002.html)	
966,342 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)		The entirety of the site is located on historic fill material (FDR page 14).	
Copper (Cu)			
72 YEARS DISCHARGED			
0 MG/KG (MAX CONCENTRATION)		1,200 mg/kg Max detection (PAP-00061704). Set to 0 since less than HF.	
0.000001 kg per mg (Merck Index)			
0 KILOGRAMS DISCHARGED			
Lead (Pb)			
72 YEARS DISCHARGED			
0 MG/KG MAX CONCENTRATION		10,000 mg/kg Max detection from soil sample 07B1S (PAS-00107497). Set to 0 since less than HF.	
0.000001 kg per mg (Merck Index)			
0 KILOGRAMS DISCHARGED			
Mercury (Hg)			
72 YEARS DISCHARGED			
4.0 MG/KG (MAX CONCENTRATION)		Max detection from soil sample AEC21-4A 0-0.5 FT (PAP-00058921)	
0.000001 kg per mg (Merck Index)			
4 KILOGRAMS DISCHARGED			

PAHs (listed in Benzo(a)pyrene Equivalent conversion table)	72 YEARS DISCHARGED	Benzo(a)pyrene Equivalent https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample.
	67.7 MG/KG (TOTAL PAH MAX CONCENTRATION)	FDR PAH max concentrations at sample 9B(2) collected from 8 ft bgs; Exhibit B-2 Restricted Area Data Table (PAP-00061814).
0.000001 kg per mg (Merck Index)	65 KILOGRAMS DISCHARGED	
PAHs (others detected)	72 YEARS DISCHARGED	
	204.15 MG/KG (TOTAL PAH MAX CONCENTRATION)	Soil sample AEC2-8A 0-0.5 FT (PAP-00058811-2)
0.000001 kg per mg (Merck Index)	197 KILOGRAMS DISCHARGED	Soil sample AEC7-ADD1 total PCB = 291.7 mg/kg. (PAP-00058841)
PCBs	72 YEARS DISCHARGED	
291.7 MG/KG (MAX OF REPORTED CONCENTRATIONS)	0.000001 kg per mg (Merck Index)	50.8 micrograms per kilogram (μ g/kg) 4,4'-DDT in sample #AEC17-ADD1 collected from between 0.5 and 1 ft bgs (PAP-00058888).
0.000001 kg per mg (Merck Index)	282 KILOGRAMS DISCHARGED	
DDx	72 YEARS DISCHARGED within DDx Timeline	
0.0508 MG/KG (MAX CONCENTRATION)	0 YEARS DISCHARGED within Dieldrin Timeline	
0.000001 kg per mg (Merck Index)	MG/KG (MAX CONCENTRATION)	
0.000004 KILOGRAMS DISCHARGED	0.000001 kg per mg (Merck Index)	
Dieldrin	0 YEARS DISCHARGED within Dieldrin Timeline	NONE REPORTED
MG/KG (MAX CONCENTRATION)	0.000001 kg per mg (Merck Index)	
0.000001 kg per mg (Merck Index)	0.00 KILOGRAMS DISCHARGED	
Dioxins/Furans	NONE FOUND IN AVAILABLE DOCUMENTATION	BASF stated dioxin precursors used in facility operations included chloranil, PA, maleic acid, and 2,6-dibromo-p-nitroaniline (PAS-00053985). Benzaldehyde was also handled at the facility (PAS-00054152). BASF states it did not, to the best of its knowledge, receive, utilize, manufacture, discharge, release, or dispose of any pesticides, materials containing 2,3,7,8-tetrachlorodibenzo-p-dioxin, or any other dioxin compounds (PAS-00054152). No information regarding the detection or remediation of chlorinated dioxins or furans was identified in the available site files.
0 YEARS DISCHARGED	0.000001 kg per mg (Merck Index)	
MG/KG (MAX CONCENTRATION)	0.00 KILOGRAMS DISCHARGED	
SUMMARY FTMASS ESTIMATES:	0.00 kg Copper	
	0.00 kg Lead	
	3.87 kg Mercury	
	65.46 kg PAHs (Benzo(a)pyrene Equivalent)	
	197.28 kg PAHs (Other)	
	281.88 kg PCBs	
	0.00 kg DDx	
	0.00 kg Dieldrin	
	0.00 kg Dioxins/Furans	
	548.49 MASS (KG) DISCHARGED FROM SURFACE SOIL	

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	47.000	1.0	47.0000
Benzo(a)anthracene	51.000	0.1	5.1000
Benzo(b)fluoranthene	82.000	0.1	8.2000
Benzo(k)fluoranthene	40.000	0.01	0.4000
Chrysene	42.000	0.001	0.0420
Dibenz(a,h)anthracene	3.300	1.0	3.3000
Indeno(1,2,3-cd)pyrene	37.000	0.1	3.7000

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = 67.7

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

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Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
1.430E-3	10.0%	Periodic Noncompliance	Multiple Administrative Consent Orders from NJDEP related to the air permits, incinerator air emissions, and waste handling and/or documentations in the 1980s and 1990. BASF received an "unacceptable" rating from NJDEP following a Compliance Evaluation Inspection conducted on February 9, 1988 for NJPDES Permit No. NJ0001112. In 1987, all permitted parameters (total organic carbon, petroleum hydrocarbons, temperature, and pH) exceeded established limitations in NPDES permit (PAP-00057827-28). In August 1988, BASF was given a Notification of Reportable Events #22-27 for violating PCB regulations. The July 1987 Annual Report noted PCB contaminated transformer YAR 49871 had been stored for disposal on site for more than one year and the area the unit was stored in did not comply with regulations (PAP-00061053-58). According to the PVSC Annual Report for 1971, dated January 18, 1972, on July 13, 1971 PVSC received a call ...about BASF discharging into the Passaic River. Upon inspection by PVSC, industrial waste was seen coming out of the ground and flowing into the Passaic River. BASF immediately ordered excavation of the area and found a break in a 3-inch pipe which was a temporary sanitary line for a construction trailer. The sewage from the main line was backing up and flowing out through the break. The break was repaired the same day and the line was later removed (PAS-00034592). The PVSC Annual Report for 1973... stated BASF ordered five truckloads of 2-ethyl-hexanol from Eldorado Terminal Corp. for delivery on Saturday, February 10, 1973. During delivery, a welded seam ruptured on the storage tank and 2,500 barrels of alcohol drained into the Passaic River. The loss was not detected by BASF until Sunday, February 11, 1973...(PAS-00034721). Barriers for drainage or flood control, and runoff control systems did not exist at the site (PAP-00062140).	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	1.287E-3

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1.287E-3

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

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Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
1.884E-1	10.0%	Periodic Noncompliance	Multiple Administrative Consent Orders from NJDEP related to the air permits, incinerator air emissions, and waste handling and/or documentations in the 1980s and 1990. BASF received an "unacceptable" rating from NJDEP following a Compliance Evaluation Inspection conducted on February 9, 1988 for NJPDES Permit No. NJ0001112. In 1987, all permitted parameters (total organic carbon, petroleum hydrocarbons, temperature, and pH) exceeded established limitations in NPDES permit (PAP-00057827-28). In August 1988, BASF was given a Notification of Reportable Events #22-27 for violating PCB regulations. The July 1987 Annual Report noted PCB contaminated transformer YAR 49871 had been stored for disposal on site for more than one year and the area the unit was stored in did not comply with regulations (PAP-00061053-58). According to the PVSC Annual Report for 1971, dated January 18, 1972, on July 13, 1971 PVSC received a call ...about BASF discharging into the Passaic River. Upon inspection by PVSC, industrial waste was seen coming out of the ground and flowing into the Passaic River. BASF immediately ordered excavation of the area and found a break in a 3-inch pipe which was a temporary sanitary line for a construction trailer. The sewage from the main line was backing up and flowing out through the break. The break was repaired the same day and the line was later removed (PAS-00034592). The PVSC Annual Report for 1973... stated BASF ordered five truckloads of 2-ethyl-hexanol from Eldorado Terminal Corp. for delivery on Saturday, February 10, 1973. During delivery, a welded seam ruptured on the storage tank and 2,500 barrels of alcohol drained into the Passaic River. The loss was not detected by BASF until Sunday, February 11, 1973...(PAS-00034721). Barriers for drainage or flood control, and runoff control systems did not exist at the site (PAP-00062140).	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	1.696E-1

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1.696E-1

Allocation Facility Cmass Calculation

Benjamin Moore & Co.

134 Lister Avenue

Newark

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Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	-	100.00%	-	0.00%	756.41	100.00%	-	0	1.018817E-2	0
Lead	100.00%	-	100.00%	-	0.00%	408.18	100.00%	-	0	1.018817E-2	0
Mercury	100.00%	-	100.00%	-	0.00%	10.20	100.00%	-	0	1.018817E-2	0
HPAHs	100.00%	23.92	100.00%	-	0.00%	-	100.00%	-	23.92	1.018817E-2	0.24
LPAHs	100.00%	77.79	100.00%	-	0.00%	-	100.00%	-	77.79	1.018817E-2	0.79
PCBs	100.00%	12.78	100.00%	-	0.00%	-	100.00%	-	12.78	1.018817E-2	0.13
DDx	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0	9.703E-12	6.695E-12
Lead	0.01	3,200,000.00	0	1.401E-11	1.401E-13
Mercury	0.95	42,000.00	0	0	0
HPAHs	0.05	240,000.00	0.24	1.015E-6	5.077E-8
LPAHs	0.01	170,000.00	0.79	4.662E-6	4.662E-8
PCBs	12.87	26,000.00	0.13	5.008E-6	6.445E-5
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	1.434E-9	1.204E-7

Allocation Facility COC Base Scores - Alternative Calculation

Benjamin Moore & Co.

134 Lister Avenue

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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	7.221E-9	0	0.02	7.221E-9	4.983E-9
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	1.525E-8	0	0.05	1.525E-8	1.525E-10
Mercury	0.95	42,000.00	4,322.53	41,955.96	0	0	0	0	0
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	5.503E-6	0.24	1.08	5.503E-6	2.752E-7
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	2.582E-5	0.79	3.6	2.582E-5	2.582E-7
PCBs	12.87	26,000.00	20,066.54	25,795.56	6.369E-4	0.13	16.43	6.369E-4	8.197E-3
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	1.434E-9	0	0	1.434E-9	1.204E-7

Facility Bypass Information

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Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	
	# hours/per day discharged	Discharge to PVSC from 1925-1980
	#days/week discharged	All wastewater recycled since 1980
	#weeks/yr discharged	
12,254,673	calc gal/yr discharge	1984-1995 flows = 8183261 gallons (PAS-00055119) 1988 44729 GPD (PAS-00055368)
1925	Yr Ops started	2006 0.019 MGD (PAP-00478668)
1980	Yr Ops ceased	2016 0.009 MGD (PAP-00478689)
55	calc #yrs facility operated	FDR states since 1925 discharge was direct to PVSC.
Copper (Cu)		
55	#yrs facility discharged	Cu to PVSC 0.144 mg/l (PAP-00238096, 99)
0.30	calc mg/L COC discharged	1995 Discharge Sampling Cu=.449 mg/l (PAS-00055118-122)
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
756.41	calc kg COC discharged	
Lead (Pb)		
55	#yrs facility discharged	Pb to PVSC 0.31 mg/l (PAP-00238096, 99)
0.16	calc mg/L COC discharged	1995 Discharge Sampling Pb =.010 mg/l (PAS-00055118-122)
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
408.18	calc kg COC discharged	
Mercury (Hg)		
55	#yrs facility discharged	1995 Discharge Sampling Hg = .004 mg/l (PAS-00055118-122)
0.0040	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
10.20	calc kg COC discharged	
HPAHs		
55	#yrs facility discharged	
	calc mg/L O&G	
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
-	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
LPAHs		
55	#yrs facility discharged	
	calc mg/L O&G	
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
-	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
PCBs		
49	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
33	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
31	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
55	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
35	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
36	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
26	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
756.41	kg Copper	
408.18	kg Lead	
10.20	kg Mercury	
-	kg HPAHs	
-	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	
	# days/week discharged	
	# weeks/yr discharged	Discharge to PVSC from 1925-1980
12,254,673	# gals/yr directly discharged	All wastewater recycled since 1980
4.08	ft; 30yr average annual precipitation per Rutgers information	1984-1995 flows = 8183261 gallons (PAS-00055119)
	acres	1988 44729 GPD (PAS-00055368)
43,560	ft2 per acre	2006 0.019 MGD (PAP-00478668)
	acres	2016 0.009 MGD (PAP-00478689)
50%	Percent Precip to River	
	Yr Ops started	
	Yr Ops ceased	
-	calc #yrs facility operated	FDR states since 1925 discharge was direct to PVSC.
Copper (Cu)		
-	#yrs facility discharged	Cu to PVSC 0.144 mg/l (PAP-00238096, 99)
0.30	calc mg/L COC discharged	1995 Discharge Sampling Cu=.449 mg/l (PAS-00055118-122)
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
-	#yrs facility discharged	Pb to PVSC 0.31 mg/l (PAP-00238096, 99)
0.16	calc mg/L COC discharged	1995 Discharge Sampling Pb = .010 mg/l (PAS-00055118-122)
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
-	#yrs facility discharged	1995 Discharge Sampling Hg = .004 mg/l (PAS-00055118-122)
0.0040	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAhs		
-	#yrs facility discharged	
-	calc mg/L O&G	
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAhs	
-	calc mg/L HPAhs	
3.785	L per gallon (Merck index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
LPAHs		
-	#yrs facility discharged	
-	calc mg/L O&G	
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
-	calc mg/L LPAHs	
3.785	L per gallon (Merck index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
PCBs		
-	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
-	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
-	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
-	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
-	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
-	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
-	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
-	kg HPAhs	
-	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
	4.08 FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University.
17 ACRES - TOTAL SITE AREA (acres)	8.13 ACRES - AFFECTED AREA	FDR page 1 Roughly 50% of the property was unpaved before 1960 (PAP-CONF-00000851) PAP-00238238 states the property as 17 acres with approximately 32,000 SF of production buildings. This results in a total area of 16.26 acres. Roughly 50% was not paved resulting in an affected areas of 8.13 acres.	
4,046.86 METERS ² /ACRE			
32,901 METERS ² (AFFECTED AREA)	0.0001 METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
3 METERS ³ /YEAR (ERODED SOIL VOLUME)	VOLUME/YEAR DISCHARGED		
1925 Year site operations began	1925 Year site operations began	FDR page 1.	
2020 Present owner/operator	2020 Present owner/operator	FDR page 1	
95 NUMBER YEARS DISCHARGE			
313 METERS ³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)			
1,842 KG/M ³ SOIL DENSITY	Fill reported as dark brown silty sand with brick, concrete, coal-like pieces, and woody fragments. (PAP-CONF-00000921). Bulk density range of Silty Sand at http://structx.com/Soil_Properties_002.html is 1,410 KG/M ³ to 2,275 KG/M ³ , so use average of 1,842.5 kg/m ³ .		
575,734 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)		The facility site is located on regional Historic Fill (FDR page 10)	
Copper (Cu)	95 YEARS DISCHARGED 0 MG/KG (MAX CONCENTRATION)	Soil boring SF02 (PAP-CONF-00000844), 63.8 ppm. Set to 0 since less than HF.	
0.000001 kg per mg (Merck Index)	0.00 KILOGRAMS DISCHARGED		
Lead (Pb)	95 YEARS DISCHARGED 0 MG/KG (AVERAGE CONCENTRATION)	Lead compounds were used from approximately 1951 until at least 1971 (PAP-00238576).	
0.000001 kg per mg (Merck Index)	0.00 KILOGRAMS DISCHARGED	Soil boring SF02 (PAP-CONF-00000844), 139 ppm. Set to 0 since less than HF.	
Mercury (Hg)	95 YEARS DISCHARGED	Mercury compounds were used by Benjamin Moore in the manufacture of paints from approximately 1953 until as late as 1971 (PAP-CONF-00010217).	
	0.0 MG/KG (MAX CONCENTRATION)	Soil boring SF02 (PAP-CONF-00000844), 0.6 ppm. Set to 0 since less than HF.	
0.000001 kg per mg (Merck Index)	0 KILOGRAMS DISCHARGED		
PAHs (listed in Benzo(a)pyrene Equivalent conversion table)	Soil boring SF02 (PAP-CONF-00000844)	Total concentration of PAH compounds for Benzo(a)pyrene Equivalent https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample .	
95 YEARS DISCHARGED	41.6 MG/KG (TOTAL PAH AVERAGE CONCENTRATION)		
0.000001 kg per mg (Merck Index)	24 KILOGRAMS DISCHARGED		
PAHs (others detected)	Fluorene - 12.9 ppm Naphthalene - 19.3 ppm Phenanthrene - 75.7 ppm Anthracene - 16.7 ppm Acenaphthene - 9.19 ppm Acenaphthylene - 1.32 ppm	Soil boring SF02H (0.0-0.5 ft) (PAP-CONF-00000845)	
95 YEARS DISCHARGED	135.1 MG/KG (TOTAL PAH MAX CONCENTRATION)		
0.000001 kg per mg (Merck Index)	78 KILOGRAMS DISCHARGED	Soil boring SF02H (0.0-0.5 ft) (PAP-CONF-00000845)	
			DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg
			Total Benzo(a)pyrene Equivalents = 41.6

PCBs

51 YEARS DISCHARGED

FDR confirms that therminol was used on site from 1969 to 1972. PCB use from 1969 to 2020 - 51 years

22.2 MG/KG (MAX OF REPORTED CONCENTRATIONS)

PAP-CONF-00000910 Ecological Assessment used PCB concentration of 22.2 mg/kg

0.000001 kg per mg (Merck Index)

13 KILOGRAMS DISCHARGED

DDx

95 YEARS DISCHARGED within DDx Timeline

MG/KG (MAX CONCENTRATION)

3.785 L per gallon (Merck Index)

0.000001 kg per mg (Merck Index)

0 KILOGRAMS DISCHARGED

Dieldrin

95 YEARS DISCHARGED within Dieldrin Timeline

MG/KG (MAX CONCENTRATION)

3.785 L per gallon (Merck Index)

0.000001 kg per mg (Merck Index)

0 KILOGRAMS DISCHARGED

Dioxins/Furans

Max of low concentrations of dioxins found in all four samples (PAP-CONF-00000830)

95 YEARS DISCHARGED

0.0000093 MG/KG (MAX CONCENTRATION)

0.000001 kg per mg (Merck Index)

0.0000054 calc kg COC discharged

SUMMARY CMASS ESTIMATES:

0.00 kg Copper

0.00 kg Lead

0.00 kg Mercury

23.92 kg PAHs (Benzo(a)pyrene Equivalent)

77.79 kg PAHs (Other)

12.78 kg PCBs

0.00 kg DDx

0.00 kg Dieldrin

0.00000535 kg Dioxins/Furans

114.49 MASS (KG) DISCHARGED FROM SURFACE SOIL

Discharge Calcs	Direct Discharge Information	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
	4.08 FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University.
	17 ACRES - TOTAL SITE AREA (acres) 0.20 ACRES - AFFECTED AREA	FDR page 1 In the Terraphase 2019 Site Assessment, Section 2.8, Pits, Lagoons, or Basins (PAP-CONF-00010221) at the second paragraph, or 0.2 acres impacted by floods.	
	4,046.86 METERS ² /ACRE		
	809 METERS ² (AFFECTED AREA)		
	0.0001 METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
	0 METERS ³ /YEAR (ERODED SOIL VOLUME)	VOLUME/YEAR DISCHARGED	
	1925 Year site operations began	FDR page 1	
	2020	FDR page 1	
	95 NUMBER YEARS DISCHARGE		Report on Flood Control (Lockwood Greene Engineer, Inc., 1961) has 8 floods capable of washing out the lagoon from 1925 to 1961. This translates to approximately 14 additional floods from 1961 to 2006 or 22 flooding events during the liability period. (PAP-00238186)
	8 METERS ³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)		
	1,842 KG/M ³ SOIL DENSITY	Fill reported at 0.5' – 4.0' as dark brown silty sand with brick, concrete, coal-like pieces, and woody fragments. (PAP-CONF-00000921). Bulk density range of Silty Sand at http://structx.com/Soil_Properties_002.html is 1,410 KG/M ³ to 2,275 KG/M ³ , so use average of 1,842.5 kg/m ³ .	
	14,163 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)	The facility site is located on regional Historic Fill (FDR page 10)	
Copper (Cu)	95 YEARS DISCHARGED 0.144 MG/KG (MAX CONCENTRATION)	Contents pumped into lagoon stated as 0.144 ppm Copper (PAP-00238099). Concentrations used to estimate sludge concentration.	
	0.000001 kg per mg (Merck Index) 0.00 KILOGRAMS DISCHARGED		
Lead (Pb)	95 YEARS DISCHARGED 0.31 MG/KG (AVERAGE CONCENTRATION)	Lead compounds were used from approximately 1951 until at least 1971 (PAP-00238576).	
	0.000001 kg per mg (Merck Index) 0.00 KILOGRAMS DISCHARGED	Contents pumped into lagoon stated as 0.31 ppm Pb (PAP-00238099).	
Mercury (Hg)	95 YEARS DISCHARGED MG/KG (MAX CONCENTRATION)	Mercury compounds were used by Benjamin Moore in the manufacture of paints from approximately 1953 until as late as 1971 (PAP-CONF-00010217).	
	0.000001 kg per mg (Merck Index) 0 KILOGRAMS DISCHARGED	Sludge not tested for mercury	

PAHs (listed in Benzo(a)pyrene Equivalent conversion table)	Total concentration of PAH compounds for Benzo(a)pyrene Equivalent https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample .
95 YEARS DISCHARGED	MG/KG (TOTAL PAH AVERAGE CONCENTRATION)
0.000001 kg per mg (Merck Index)	0 KILOGRAMS DISCHARGED
PAHs (others detected)	Other PAHs = Benzo(g,h,i)perylene, Fluorene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Naphthalene, 2-Methylnaphthalene.
95 YEARS DISCHARGED	MG/KG (TOTAL PAH MAX CONCENTRATION)
0.000001 kg per mg (Merck Index)	0 KILOGRAMS DISCHARGED
PCBs	90 YEARS DISCHARGED

Sludge not tested for PAHs

Chrysene

Dibenz(a,h)anthracene

Indeno(1,2,3-cd)pyrene

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = 0.0

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	1.0	0.0000	
Benzo(a)anthracene	0.1	0.0000	
Benzo(b)fluoranthene	0.1	0.0000	
Benzo(k)fluoranthene	0.01	0.0000	
Chrysene	0.001	0.0000	
Dibenz(a,h)anthracene	1.0	0.0000	
Indeno(1,2,3-cd)pyrene	0.1	0.0000	

MG/KG (MAX OF REPORTED CONCENTRATIONS)	Not found in sludge
0.000001 kg per mg (Merck Index)	0 KILOGRAMS DISCHARGED
DDx	0 YEARS DISCHARGED within DDx Timeline
MG/KG (MAX CONCENTRATION)	3.785 L per gallon (Merck Index)
0.000001 kg per mg (Merck Index)	0 KILOGRAMS DISCHARGED
Dieldrin	0 YEARS DISCHARGED within Dieldrin Timeline
MG/KG (MAX CONCENTRATION)	3.785 L per gallon (Merck Index)
0.000001 kg per mg (Merck Index)	0 KILOGRAMS DISCHARGED
Dioxins/Furans	NONE FOUND IN AVAILABLE DOCUMENTATION
0 YEARS DISCHARGED	MG/KG (MAX CONCENTRATION)
0.000001 kg per mg (Merck Index)	0 calc kg COC discharged

SUMMARY CMASS ESTIMATES:
0.0020 kg Copper
0.0044 kg Lead
0.00 kg Mercury
0.00 kg PAHs (Benzo(a)pyrene Equivalent)
0.00 kg PAHs (Other)
0.00 kg PCBs
0.00 kg DDx
0.00 kg Dieldrin
0.00 kg Dioxins/Furans

0.0064 MASS (KG) DISCHARGED FROM SURFACE SOIL

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Benjamin Moore & Co.

134 Lister Avenue

Newark

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Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
6.467E-5	10.0%	Periodic Noncompliance	On August 15, 1969, the WPCP of the NJDOH issued an Administrative Order to Benjamin Moore pursuant to the provisions of R.S. 58:12-2. In response to a Benjamin Moore inquiry for the specific details on which the order was based, in a September 4, 1969 letter the State stated that the alleged violation was based on "pollution of the Passaic River in terms of odor, turbidity, color, biochemical oxygen demand, chemical oxygen demand, other soluble matter and suspended solids." Benjamin Moore followed up and discovered 3 drains in the vehicle plant that discharged to the storm sewer. These were connected to the sanitary sewer (PAS-00055008-9, 21-22, 26). On March 23, 1978, the Coast Guard notified Benjamin Moore that a Coast Guard helicopter had noticed a spill from the plant in the River. Investigation with the Coast Guard found a 55-gal drum had been punctured approximately amid ships" and part of its contents had migrated to the Passaic River. At 12:50 PM, July 8, 1980, a valve malfunction spilled about 3,000 gallons of wash solvent. Although this was contained by the retaining dike around the tanks, about 25-50 gallons allegedly leaked from the dike into the Passaic River...According to the Site Assessment, "Given the date of the release, the only COC that could have been contained in the wash solvent was naphthalene..." (PAP-CONF-00010225).	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	5.820E-5
						AP_ABS

5.820E-5

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Benjamin Moore & Co.

134 Lister Avenue

Newark

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Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
8.197E-3	10.0%	Periodic Noncompliance	On August 15, 1969, the WPCP of the NJDOH issued an Administrative Order to Benjamin Moore pursuant to the provisions of R.S. 58:12-2. In response to a Benjamin Moore inquiry for the specific details on which the order was based, in a September 4, 1969 letter the State stated that the alleged violation was based on "pollution of the Passaic River in terms of odor, turbidity, color, biochemical oxygen demand, chemical oxygen demand, other soluble matter and suspended solids." Benjamin Moore followed up and discovered 3 drains in the vehicle plant that discharged to the storm sewer. These were connected to the sanitary sewer (PAS-00055008-9, 21-22, 26). On March 23, 1978, the Coast Guard notified Benjamin Moore that a Coast Guard helicopter had noticed a spill from the plant in the River. Investigation with the Coast Guard found a 55-gal drum had been punctured approximately amid ships" and part of its contents had migrated to the Passaic River. At 12:50 PM, July 8, 1980, a valve malfunction spilled about 3,000 gallons of wash solvent. Although this was contained by the retaining dike around the tanks, about 25-50 gallons allegedly leaked from the dike into the Passaic River...According to the Site Assessment, "Given the date of the release, the only COC that could have been contained in the wash solvent was naphthalene..." (PAP-CONF-00010225).	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	7.378E-3

AP_ABS

7.378E-3

Allocation Facility Cmass Calculation

Berol Corporation

41 Dickinson Street

Newark

NJ

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	-	100.00%	-	13.00%	-	100.00%	-	0	1.018817E-2	0
Lead	100.00%	-	100.00%	-	13.00%	-	100.00%	-	0	1.018817E-2	0
Mercury	100.00%	-	100.00%	-	13.00%	-	100.00%	-	0	1.018817E-2	0
HPAHs	100.00%	-	100.00%	543.84	13.00%	7,831.27	100.00%	465.3	2,027.36	1.018817E-2	20.66
LPAHs	100.00%	-	100.00%	362.56	13.00%	5,220.85	100.00%	310.2	1,351.58	1.018817E-2	13.77
PCBs	100.00%	-	100.00%	-	13.00%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	13.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	13.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	13.00%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Berol Corporation

41 Dickinson Street

Newark

NJ

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0	0	0
Lead	0.01	3,200,000.00	0	0	0
Mercury	0.95	42,000.00	0	0	0
HPAHs	0.05	240,000.00	20.66	8.606E-5	4.303E-6
LPAHs	0.01	170,000.00	13.77	8.100E-5	8.100E-7
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calculation

Berol Corporation

41 Dickinson Street

Newark

NJ

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	0	0	0	0	0
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	0	0	0	0	0
Mercury	0.95	42,000.00	4,322.53	41,955.96	0	0	0	0	0
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	4.664E-4	20.66	91.29	4.664E-4	2.332E-5
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	4.486E-4	13.77	62.49	4.486E-4	4.486E-6
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Berol Corporation

41 Dickinson Street

Newark

NJ

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Clay St	CSO	0.90%	41.36%	
2	Clay St	Bypass	12.63%	100.00%	

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day	Discharged wastewater and storm water to CSO and storm sewer, connected in 1924. discharged to Passaic from 1919-1924
	# hours/per day discharged	
	#days/week discharged	
	#weeks/yr discharged	
12,683,494.17	calc gal/yr discharge(PAP00102592, PAP00425704)	1975 PVSC Waste Effluent Survey, 1980 PVSC Permit, 1985 PVSC Permit, 1990 PVSC Permit, 1995 PVSC Permit
1924	Yr Ops started	
1996	Yr Ops ceased	
72	calc #yrs facility operated	
Copper (Cu)		
72	#yrs facility discharged	
-	calc mg/L COC discharged PAP00102679	PAP-0010593, 1975 Waste Effluent Survey notes no metallic ions including copper, lead and mercury. PAP-00102709 and PAP-00102636, PVSC permit applications noting copper/lead and mercury, known to be absent. PAP-00102618, PAP-00102620 and PAP-00102628, PVSC permit applications noting copper/lead/mercury not expected to be present in wastewater.
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
72	#yrs facility discharged	
-	calc mg/L COC discharged PAP00102679	PAP-0010593, 1975 Waste Effluent Survey notes no metallic ions including copper, lead and mercury. PAP-00102709 and PAP-00102636, PVSC permit applications noting copper/lead and mercury, known to be absent. PAP-00102618, PAP-00102620 and PAP-00102628, PVSC permit applications noting copper/lead/mercury not expected to be present in wastewater.
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
72	#yrs facility discharged	
-	calc mg/L COC discharged PAP00102679	PAP-0010593, 1975 Waste Effluent Survey notes no metallic ions including copper, lead and mercury. PAP-00102709 and PAP-00102636, PVSC permit applications noting copper/lead and mercury, known to be absent. PAP-00102618, PAP-00102620 and PAP-00102628, PVSC permit applications noting copper/lead/mercury not expected to be present in wastewater.
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAhs		
72	#yrs facility discharged	
40.38	calc mg/L O&G (PAP00102592, PAP00425704)	
10%	% O&G that is considered PAHs	1975 PVSC Waste Effluent Survey, 1985 PVSC Permit, 1990 PVSC Permit, 1995 PVSC Permit
60%	% PAHs considered as HPAhs	
2	calc mg/L HPAhs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
8,375.11	calc kg COC discharged	
LPAHs		
72	#yrs facility discharged	
40.38	calc mg/L O&G (PAP00102592, PAP00425704)	
10%	% O&G that is considered PAHs	1975 PVSC Waste Effluent Survey, 1985 PVSC Permit, 1990 PVSC Permit, 1995 PVSC Permit
40%	% PAHs considered as LPAHs	
2	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
5,583.41	calc kg COC discharged	
PCBs		
49	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
33	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
38	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
72	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
51	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
41	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
26	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
8,375.11	kg HPAhs	
5,583.41	kg LPAHs	
-	kg PCBs	
-	kg DDx	

-	kg Dieldrin
-	kg Dioxins/Furans

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	Discharged wastewater and storm water to CSO and storm sewer, connected in 1924. discharged to Passaic from 1919-1924
	# days/week discharged	
	# weeks/yr discharged	
12,683,494.17	# gals/yr directly discharged	COCs concentrations assumed same as to PVSC
4.08	ft; 30yr average annual precipitation per Rutgers information	
acres		
43,560	ft2 per acre	
1919	Yr Ops started	
1923	Yr Ops ceased	
4	calc #yrs facility operated	
Copper (Cu)		
4	#yrs facility discharged	
-	calc mg/L COC discharged	PAP-0010593, 1975 Waste Effluent Survey notes no metallic ions including copper, lead and mercury. PAP-00102709 and PAP-00102636, PVSC permit applications noting copper/lead and mercury, known to be absent. PAP-00102618, PAP-00102620 and PAP-00102628, PVSC permit applications noting copper/lead/mercury not expected to be present in wastewater.
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
4	#yrs facility discharged	
-	calc mg/L COC discharged	PAP-0010593, 1975 Waste Effluent Survey notes no metallic ions including copper, lead and mercury. PAP-00102709 and PAP-00102636, PVSC permit applications noting copper/lead and mercury, known to be absent. PAP-00102618, PAP-00102620 and PAP-00102628, PVSC permit applications noting copper/lead/mercury not expected to be present in wastewater.
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
4	#yrs facility discharged	
-	calc mg/L COC discharged	PAP-0010593, 1975 Waste Effluent Survey notes no metallic ions including copper, lead and mercury. PAP-00102709 and PAP-00102636, PVSC permit applications noting copper/lead and mercury, known to be absent. PAP-00102618, PAP-00102620 and PAP-00102628, PVSC permit applications noting copper/lead/mercury not expected to be present in wastewater.
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAhs		
4	#yrs facility discharged	
40.38	calc mg/L O&G (PAP00102592, PAP00425704)	
10%	% O&G that is considered PAhs	
40%	% PAhs considered as HPAhs	
2	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
465.2841	calc kg COC discharged	
LPAHs		
4	#yrs facility discharged	
40.38	calc mg/L O&G (PAP00102592, PAP00425704)	
10%	% O&G that is considered PAhs	
40%	% PAhs considered as LPAHs	
2	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
310.1894	calc kg COC discharged	
PCBs		
-5	#yrs facility discharged within PCBs Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
-16	#yrs facility discharged within DDx Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
-26	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
4	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
-22	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
-21	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
-26	#yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
465.28	kg HPAhs	
310.19	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	

- kg Dioxins/Furans

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Berol Corporation

41 Dickinson Street

Newark

NJ

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
5.113E-6	0.0%	Historically Compliant or No Evidence	No information on NOVs was identified in the available file material. There were releases to the surface. Stained areas on compromised asphalt in courtyard area; excavated 227 tons soil due to PAHs to a depth of 36 in. Removed naptha UST in Feb 1995 and excavated 30 tons soil. Excavated 3.5 tons soil from sink drain discharge area to depth of 36 in (see FDR page 10 for more information).	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	4.091E-6
						AP_ABS 4.091E-6

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Berol Corporation

41 Dickinson Street

Newark

NJ

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
2.781E-5	0.0%	Historically Compliant or No Evidence	No information on NOVs was identified in the available file material. There were releases to the surface. Stained areas on compromised asphalt in courtyard area; excavated 227 tons soil due to PAHs to a depth of 36 in. Removed naptha UST in Feb 1995 and excavated 30 tons soil. Excavated 3.5 tons soil from sink drain discharge area to depth of 36 in (see FDR page 10 for more information).	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	2.225E-5
						AP_ABS 2.225E-5

Allocator's Determinations Regarding Legal Defenses Raised by Allocation Parties

BEROL

Berol argues that OxyChem released Berol and certain other parties (including Berol's parent company, Newell Brands Inc.) from OxyChem's claim for Remedial Design Costs related to OU2. Accordingly, any allocation of OU2 costs that includes OxyChem and Berol (and the other released parties) must reflect this release of liability.

ALLOCATOR'S DETERMINATION – Though I have not had the opportunity to review the underlying settlement document and other potentially relevant facts associated with the release provided by OCC, assuming its validity, it is apparent that there is a high likelihood of success in any action against OCC to enforce the release. Given OCC's lack of participation in the allocation process, however, the Allocator does not believe that it is appropriate to account for the amount of any such release in the assignment of allocated shares. Rather, the Allocator notes the existence of the release and recommends that it be taken into account in determining the appropriate amount of any future settlement with EPA.

Allocation Facility Cmass Calculation

Campbell Foundry Company

800 Bergen Street

Harrison

NJ

07029

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	23.72	100.00%	-	0.27%	10,845.27	100.00%	-	53.04	1.018817E-2	0.54
Lead	100.00%	174.75	100.00%	-	0.27%	154,229.41	100.00%	-	591.76	1.018817E-2	6.03
Mercury	100.00%	0.19	100.00%	-	0.27%	0.34	100.00%	-	0.19	1.018817E-2	0
HPAHs	100.00%	7.71	100.00%	-	0.27%	0.65	100.00%	-	7.71	1.018817E-2	0.08
LPAHs	100.00%	4.18	100.00%	-	0.27%	7.55	100.00%	-	4.2	1.018817E-2	0.04
PCBs	100.00%	2.64	100.00%	-	0.27%	-	100.00%	-	2.64	1.018817E-2	0.03
DDx	100.00%	-	100.00%	-	0.27%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.27%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.27%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Campbell Foundry Company

800 Bergen Street

Harrison

NJ

07029

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0.54	2.573E-7	1.776E-7
Lead	0.01	3,200,000.00	6.03	1.884E-6	1.884E-8
Mercury	0.95	42,000.00	0	4.631E-8	4.399E-8
HPAHs	0.05	240,000.00	0.08	3.274E-7	1.637E-8
LPAHs	0.01	170,000.00	0.04	2.517E-7	2.517E-9
PCBs	12.87	26,000.00	0.03	1.034E-6	1.331E-5
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calculation

Campbell Foundry Company

800 Bergen Street

Harrison

NJ

07029

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	1.915E-4	0.54	401.66	1.915E-4	1.321E-4
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	2.051E-3	6.03	6,555.94	2.051E-3	2.051E-5
Mercury	0.95	42,000.00	4,322.53	41,955.96	4.417E-5	0	1.85	4.417E-5	4.196E-5
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	1.774E-6	0.08	0.35	1.774E-6	8.871E-8
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	1.394E-6	0.04	0.19	1.394E-6	1.394E-8
PCBs	12.87	26,000.00	20,066.54	25,795.56	1.316E-4	0.03	3.39	1.316E-4	1.693E-3
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Campbell Foundry Company

800 Bergen Street

Harrison

NJ

07029

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Worthington Ave	CSO	0.48%	56.33%	No metering was done at this location for the Killiam report. CSO percentages were calculated by the median of all CSOs in the Harrison municipality

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
15,000	gal discharged per day PAS00108465	1975-77 0.015MGD Discharge
	# hours/per day discharged	assumed to be 5 days per week, 52 weeks per year - no data
5	#days/week discharged	No discharge data - Estimating based on data from Revere Smelting Operations
52	#weeks/yr discharged	
3,900,000	calc gal/yr discharge	Facility was connected to the PVSC around 1921
		PAP00070209 states that sanitary has always been connected to public sewers.
1927	Yr Ops started	1987/88 PVSC report listed facility as "Company with Zero Discharge."
2020	Yr Ops ceased	
93	calc #yrs facility operated	
Copper (Cu)		
93	#yrs facility discharged	Based on Revere smelting - reduced by 50% due to nature of operation
7.90	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
10,845.27	calc kg COC discharged	
Lead (Pb)		
93	#yrs facility discharged	Based on Revere smelting - reduced by 50% due to nature of operation
112.35	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
154,229.41	calc kg COC discharged	
Mercury (Hg)		
93	#yrs facility discharged	Based on Revere smelting - reduced by 50% due to nature of operation
0.0002	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0.336	calc kg COC discharged	
HPAhs		
93	#yrs facility discharged	Based on Revere smelting
	calc mg/L O&G	
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAhs	
0.00047	calc mg/L HPAhs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0.6452	calc kg COC discharged	
LPAHs		
93	#yrs facility discharged	Based on Revere Smelting
-	calc mg/L O&G	
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
0.0055	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
7.55	calc kg COC discharged	
PCBs		
49	#yrs facility discharged within PCBs Timeline	PCBs were found in gravel area at South end of the facility, opposite from a storm sewer drain. Minor discharge of hydraulic oil from onsite equipment. Did not migrate to or impact sewer.
-	calc mg/L COC discharged PAP00073048, PAP00073437	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
33	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
38	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
93	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
75	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
41	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
26	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
10,845.274	kg Copper	
154,229.407	kg Lead	
0.336	kg Mercury	
0.645	kg HPAhs	
7.551	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	

-	kg Dioxins/Furans	
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Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	
	# days/week discharged	
	# weeks/yr discharged	PAS-00012495 - NO direct outfall to the Passaic River.
	# gals/yr directly discharged	Facility is located within the Worthington Avenue CSO District (PAS00012495-98)
4.08	ft; 30yr average annual precipitation per Rutgers information	
	acres	
43,560	ft2 per acre	
	Yr Ops started	
	Yr Ops ceased	
1	calc #yrs facility operated	
Copper (Cu)		
1	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
	calc kg COC discharged	
Lead (Pb)		
1	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
1	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
1	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
	calc kg COC discharged	
LPAHs		
1	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
	calc kg COC discharged	
PCBs		
-1928	#yrs facility discharged within PCBs Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
-1939	#yrs facility discharged within DDX Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
-1945	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
1	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
-1945	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
-1944	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
-1949	#yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
-	kg HPAHs	
-	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs

Direct Discharge Information
4.08 FEET/YEAR AVERAGE PRECIPITATION

ASSUMPTIONS, REFERENCES
Long term average annual precipitation includes floods and hurricane events occurring over time.

COMMENTS/NOTES
Data from Rutgers University.

2.6 ACRES - TOTAL SITE AREA (acres)

0.90 ACRES - AFFECTED AREA

Structures not on site until 1947 (PAP-00073054). After 1947, 85% covered (PAP-00070192). Estimated 0.9 acres over entire period of ownership

4,046.86 METERS²/ACRE

3,642 METERS² (AFFECTED AREA)

0.0001 METERS/YEAR (ERODED SOIL THICKNESS)

For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.

0 METERS³/YEAR (ERODED SOIL VOLUME)

VOLUME/YEAR DISCHARGED TO PASSAIC RIVER

1927 Year site operations began

FDR page 1

2020 Year site processing and storage operations ceased

Present (FDR page 1)

93 NUMBER YEARS DISCHARGE

Campbell Foundry liability 93 years, 1927 to present (FDR, page 1)

34 METERS³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)

1,843 KG/M³ SOIL DENSITY

Black medium to coarse sand, trace silt (PAP-00073044). Bulk density range for silty sand 1410 KG/M³ to 2275 KG/M³, so use average. (http://structx.com/Soil_Properties_002.html)

62,410 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)

Copper (Cu)

93 YEARS DISCHARGED

380 MG/KG (MAX CONCENTRATION)

Copper was found in on-site soil sample E2C-1 (1.5-2) at 380 mg/kg. (PAP-00073468).

0.000001 kg per mg (Merck Index)

23.72 KILOGRAMS DISCHARGED

Lead (Pb)

93 YEARS DISCHARGED

2800 MG/KG (MAX CONCENTRATION)

Lead was found in on-site soil sample E7-1 (0.5-1) at 2,800 mg/kg. (PAP-00073468).

0.000001 kg per mg (Merck Index)

174.75 KILOGRAMS DISCHARGED

Mercury (Hg)

93 YEARS DISCHARGED

3.0 MG/KG (MAX CONCENTRATION)

Mercury was found in on-site soil sample E2C-1 (1.5-2) at 3 mg/kg. (PAP-00073469).

0.000001 kg per mg (Merck Index)

0.19 KILOGRAMS DISCHARGED

PAHs (listed in Benzo(a)pyrene Equivalent conversion table)

93 YEARS DISCHARGED
123.6 MG/KG (TOTAL PAH MAX CONCENTRATION)
0.000001 kg per mg (Merck Index)
7.71 KILOGRAMS DISCHARGED

PAHs (others detected)
93 YEARS DISCHARGED
67 MG/KG (TOTAL PAH MAX CONCENTRATION)
0.000001 kg per mg (Merck Index)
4.18 KILOGRAMS DISCHARGED

PCBs
90 YEARS DISCHARGED

4.3 MG/KG (MAX CONCENTRATION)

0.000001 kg per mg (Merck Index)
2.64 KILOGRAMS DISCHARGED

DDx
0 NONE FOUND IN AVAILABLE DOCUMENTATION
0 MG/KG (MAX CONCENTRATION)
3.785 L per gallon (Merck Index)
0.000001 kg per mg (Merck Index)
0 KILOGRAMS DISCHARGED

Dieldrin
0 NONE FOUND IN AVAILABLE DOCUMENTATION
0 MG/KG (MAX CONCENTRATION)
3.785 L per gallon (Merck Index)
0.000001 kg per mg (Merck Index)
0 KILOGRAMS DISCHARGED

Dioxins/Furans
0 NONE FOUND IN AVAILABLE DOCUMENTATION
0 MG/KG (MAX CONCENTRATION)
0.000001 kg per mg (Merck Index)
0 calc kg COC discharged

SUMMARY CMASS ESTIMATES:

23.72 kg Copper
174.75 kg Lead
0.19 kg Mercury
7.71 kg PAHs (Benzo(a)pyrene Equivalent)
4.18 kg PAHs (Other)
2.64 kg PCBs
0.00 kg DDX
0.00 kg Dieldrin
0.00 kg Dioxins/Furans

213.19 MASS (KG) DISCHARGED FROM SURFACE SOIL

Total concentration of PAH compounds for Benzo(a)pyrene Equivalent
<https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample>.

Sum of Benzo(a)pyrene Equivalent conversion concentrations

Data below the Benzo(a)pyrene Equivalent Table

PCBs first used in 1930

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Maximum concentrations found in surface soil sample E7-1 (0.5-1 ft bgs) (PAP 00073557-58).			
Benzo(a)pyrene	86.000	1.0	86.0000
Benzo(a)anthracene	62.000	0.1	6.2000
Benzo(b)fluoranthene	100.000	0.1	10.0000
Benzo(k)fluoranthene	34.000	0.01	0.3400
Chrysene	62.000	0.001	0.0620
Dibenz(a,h)anthracene	15.000	1.0	15.0000
Indeno(1,2,3-cd)pyrene	60.000	0.1	6.0000

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = 123.6

Maximum PAH concentrations found in soil sample E7-1 (0.5-1 ft bgs) (PAP-00073557-58).

Anthracene	11
Acenaphthene	5.9
Acenaphthylene	0
Fluorene	3
Naphthalene	7.1
Phenanthrene	38
2-Methylnaphthalene	2
SUM	67

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Campbell Foundry Company

800 Bergen Street

Harrison

NJ

07029

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
1.018E-5	5.0%	Occasional Noncompliance	NJDEP issued several violations related to poor housekeeping (e.g., spilling hazardous waste - cupola dust on the ground, hazardous waste containers split open and the hazardous waste spilled on the ground, etc.) in 1983 (PAS-00012571; PAP-00070212).	0.0%	0% Cooperation with conduct of allocation and requests for related information	1.069E-5
						AP_ABS 1.069E-5

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Campbell Foundry Company

800 Bergen Street

Harrison

NJ

07029

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
1.416E-3	5.0%	Occasional Noncompliance	NJDEP issued several violations related to poor housekeeping (e.g., spilling hazardous waste - cupola dust on the ground, hazardous waste containers split open and the hazardous waste spilled on the ground, etc.) in 1983 (PAS-00012571; PAP-00070212).	0.0%	0% Cooperation with conduct of allocation and requests for related information	1.487E-3
						AP_ABS 1.487E-3

Allocation Facility Cmass Calculation

Canning Gumm LLC

538 Forest Street

Kearny

NJ

07032

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COCA%	COC Historic CMass
Copper	100.00%	-	100.00%	-	1.21%	636.74	100.00%	-	7.72	1.018817E-2	0.08
Lead	100.00%	-	100.00%	-	1.21%	72.46	100.00%	-	0.88	1.018817E-2	0.01
Mercury	100.00%	-	100.00%	-	1.21%	18.14	100.00%	-	0.22	1.018817E-2	0
HPAHs	100.00%	-	100.00%	-	1.21%	50.80	100.00%	-	0.62	1.018817E-2	0.01
LPAHs	100.00%	-	100.00%	-	1.21%	33.87	100.00%	-	0.41	1.018817E-2	0
PCBs	100.00%	-	100.00%	-	1.21%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	1.21%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	1.21%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	1.21%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Canning Gumm LLC

538 Forest Street

Kearny

NJ

07032

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0.08	3.744E-8	2.583E-8
Lead	0.01	3,200,000.00	0.01	2.796E-9	2.796E-11
Mercury	0.95	42,000.00	0	5.334E-8	5.068E-8
HPAHs	0.05	240,000.00	0.01	2.614E-8	1.307E-9
LPAHs	0.01	170,000.00	0	2.460E-8	2.460E-10
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

ARR2152

Allocation Facility COC Base Scores - Alternative Calculation

Canning Gumm LLC

538 Forest Street

Kearny

NJ

07032

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	2.786E-5	0.08	58.44	2.786E-5	1.923E-5
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	3.043E-6	0.01	9.73	3.043E-6	3.043E-8
Mercury	0.95	42,000.00	4,322.53	41,955.96	5.087E-5	0	2.13	5.087E-5	4.833E-5
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	1.417E-7	0.01	0.03	1.417E-7	7.083E-9
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	1.362E-7	0	0.02	1.362E-7	1.362E-9
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Canning Gumm LLC

538 Forest Street

Kearny

NJ

07032

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Ivy	CSO	1.83%	66.23%	

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	
	# hours/per day discharged	
	#days/week discharged	
	#weeks/yr discharged	
1,174,914	calc gal/yr discharge; (FDR) (PAS-00015782, 15855-68, 16003-19)	
1933	Yr Ops started (FDR)	
2002	Yr Ops ceased (FDR)	
18	hrs sanitary/industrial ww discharged to onsite septic system (FDR)	
51	calc #yrs facility operated	
Copper (Cu)		
51	#yrs facility discharged	
2.81	calc mg/L COC discharged; (FDR) (PAS-00015782, 15855-68, 16003-19; PAS-00016258, 16613-17)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
637	calc kg COC discharged	
Lead (Pb)		
51	#yrs facility discharged	
0.32	calc mg/L COC discharged; (FDR) (PAS-00015782, 16003-19; PAS-00015782, 16058-64, PAS-00016258, 16613-17)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
72	calc kg COC discharged	
Mercury (Hg)		
51	#yrs facility discharged	
0.08	calc mg/L COC discharged; (FDR) (PAS-00016258, 16613-17)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
18	calc kg COC discharged	
HPAhs		used stoddard solvent (petro based solvent), #2 fuel oil
51	#yrs facility discharged	
3.7	calc mg/L O&G discharged; (FDR) (PAS-00015782, 15855-68, 16003-19; PAS-00016258, 16613-17)	
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAhs	
0.2	calc mg/L HPAhs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
50.80	calc kg COC discharged	
LPAHs		used stoddard solvent (petro based solvent), #2 fuel oil
51	#yrs facility discharged	
3.7	calc mg/L O&G discharged; (FDR) (PAS-00015782, 15855-68, 16003-19; PAS-00016258, 16613-17)	
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
0	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
33.87	calc kg COC discharged	
PCBs		no use/presence per AP
45	#yrs facility discharged within PCBs Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		no use/presence per AP
33	#yrs facility discharged within DDx Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		no use/presence per AP
38	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		no use/presence per AP
51	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		no use/presence per AP
57	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		no use/presence per AP
41	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		no use/presence per AP
26	#yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
637	kg Copper	
72	kg Lead	
18	kg Mercury	
51	kg HPAhs	
34	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Canning Gumm LLC

538 Forest Street	Kearny	NJ	07032
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Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
7.809E-8	0.0%	Historically Compliant or No Evidence	No information on NOVs was identified in the available file material. The facility monitored their effluent discharged to the PVSC in the 1980s and 1990s and had occasional violations of the lead permit limit. Each time the facility responded to try to fix the issues, and noted that lead was not used in their processes. Leaking USTs led to onsite LNAPL contamination from No. 2 fuel oil, which is being remediated.	-10.0%	-10% SPG member - Provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory to address environmental or public harm created by own activities	7.028E-8
						AP_ABS 7.028E-8

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Canning Gumm LLC

538 Forest Street

Kearny

NJ

07032

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
6.760E-5	0.0%	Historically Compliant or No Evidence	No information on NOVs was identified in the available file material. The facility monitored their effluent discharged to the PVSC in the 1980s and 1990s and had occasional violations of the lead permit limit. Each time the facility responded to try to fix the issues, and noted that lead was not used in their processes. Leaking USTs led to onsite LNAPL contamination from No. 2 fuel oil, which is being remediated.	-10.0%	-10% SPG member - Provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory to address environmental or public harm created by own activities	6.084E-5
						AP_ABS 6.084E-5

Allocation Facility Cmass Calculation

CBS Corporation

95 Orange Street

Newark

NJ

07102

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	80.77	100.00%	14,281.75	13.00%	24,483.00	100.00%	-	17,545.86	1.018817E-2	178.76
Lead	100.00%	526.62	100.00%	5,824.47	13.00%	9,984.81	100.00%	-	7,649.34	1.018817E-2	77.93
Mercury	100.00%	2.09	100.00%	10.05	13.00%	17.23	100.00%	-	14.38	1.018817E-2	0.15
HPAHs	100.00%	1.11	100.00%	9,101.73	13.00%	15,602.96	100.00%	-	11,131.57	1.018817E-2	113.41
LPAHs	100.00%	0.26	100.00%	6,067.82	13.00%	10,401.97	100.00%	-	7,420.57	1.018817E-2	75.6
PCBs	100.00%	0.95	100.00%	-	13.00%	-	100.00%	-	0.95	1.018817E-2	0.01
DDx	100.00%	-	100.00%	-	13.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	13.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	13.00%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

CBS Corporation

95 Orange Street

Newark

NJ

07102

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	178.76	8.512E-5	5.874E-5
Lead	0.01	3,200,000.00	77.93	2.435E-5	2.435E-7
Mercury	0.95	42,000.00	0.15	3.488E-6	3.314E-6
HPAHs	0.05	240,000.00	113.41	4.725E-4	2.363E-5
LPAHs	0.01	170,000.00	75.6	4.447E-4	4.447E-6
PCBs	12.87	26,000.00	0.01	3.723E-7	4.791E-6
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calculation

CBS Corporation

95 Orange Street

Newark

NJ

07102

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	6.335E-2	178.76	132,859.48	6.335E-2	4.371E-2
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	2.651E-2	77.93	84,744.64	2.651E-2	2.651E-4
Mercury	0.95	42,000.00	4,322.53	41,955.96	3.327E-3	0.15	139.58	3.327E-3	3.160E-3
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	2.561E-3	113.41	501.26	2.561E-3	1.281E-4
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	2.463E-3	75.6	343.11	2.463E-3	2.463E-5
PCBs	12.87	26,000.00	20,066.54	25,795.56	4.734E-5	0.01	1.22	4.734E-5	6.093E-4
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

CBS Corporation

95 Orange Street

Newark

NJ

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Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Clay St	CSO	0.90%	41.36%	
2	Clay St	Bypass	12.63%	100.00%	

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	
	# hours/per day discharged	
	#days/week discharged	
	#weeks/yr discharged	
280	# days/yr (FDR) (PAS-00009867)	
104,198,573	calc gal/yr discharge (FDR) (PAS-00009660, PAS-00009860, PAS-00009867, PAP-00347467, PAP-00425582, PAP-00348950)	
1889	Yr Ops initially started (FDR)	
1894	Yr Ops initially ceased (FDR)	
5	calc #yrs facility initially operated	
1901	yr Ops restarted (FDR)	
1983	yr ops ceased (FDR)	
82	calc #yrs facility subsequently operated	
87	calc # yrs facility operated, total	
Copper (Cu)		
87	#yrs facility discharged	
1.39	calc mg/L COC discharged	(FDR) (PAS-00009660, PAS-00009860, PAS-00009867, PAP-00425582, PAP-00348950). 0.407 mg/l pre 1960
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
38,765	calc kg COC discharged	
Lead (Pb)		
87	#yrs facility discharged	
0.46	calc mg/L COC discharged (FDR) (PAS-00009660, PAS-00009860, PAS-00009867, PAP-00348950)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
15,899	calc kg COC discharged	
Mercury (Hg)		
87	#yrs facility discharged	
0.000001	calc mg/L COC discharged (FDR) (PAS-00009660, PAS-00009860, PAS-00009867, PAP-00348950)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
27	calc kg COC discharged	
HPAHs		
87	#yrs facility discharged	
12	calc mg/L O&G (FDR) (PAS-00009660, PAS-00009860, PAS-00009867)	
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
1	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
24,705	calc kg COC discharged	
LPAHs		
87	#yrs facility discharged	
12	calc mg/L O&G (FDR) (PAS-00009660, PAS-00009860, PAS-00009867)	
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
0	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
16,470	calc kg COC discharged	
PCBs		
49	#yrs facility discharged within PCBs Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
	calc kg COC discharged	
DDx		
33	#yrs facility discharged within DDx Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
34	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
87	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
38	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
39	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
26	#yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
38,765	kg Copper	
15,899	kg Lead	
27	kg Mercury	
24,705	kg HPAHs	
16,470	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
	4.08 FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University.
	3.45 ACRES - TOTAL SITE AREA (acres)	FDR p 1	
	1 ACRES - AFFECTED AREA	Rough estimate of site area with exposed fill determined from review of historical aerial photographs 1930-2020 (Google Earth Pro and https://njdep.maps.arcgis.com/apps/webappviewer/index.html). Estimating 75% of the site was occupied by buildings	
	4,046.86 METERS ² /ACRE		
	3,490 METERS ² (AFFECTED AREA)		
	0.0001 METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
	0 METERS ³ /YEAR (ERODED SOIL VOLUME)	VOLUME/YEAR DISCHARGED	
	1889 Year site operations began (FDR p 1)	CBS (then Westinghouse) leased the site before they bought it in 1891 (FDR p 1)	
	1983 Year site operations ceased (FDR p 1)	CBS ceased operations and sold the site in 1983 (FDR p 2)	
	94 NUMBER YEARS DISCHARGE		
	33 METERS ³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)		
	1,939 KG/M ³ SOIL DENSITY	Fill over much of the site was reported as pieces of bricks, blocks, and wood along with ash, slag, sand, and coal in a soil matrix. Native soils consist of red-brown clay, silt, sand, and gravel (PAP-00086836). Bulk density range 1378 KG/M ³ to 2499 KG/M ³ , so use average. (http://structx.com/Soil_Properties_002.html)	
	63,602 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)		
		The allocation team determined that this site is not located on historic fill (FDR p 17)	
Copper (Cu)	94 YEARS DISCHARGED	Copper plating process on site (FDR p 3)	
	1270 MG/KG (MAX CONCENTRATION)	Sample Y-14 (1-1.5 ft bgs) (PAP-00086887)	
	0.000001 kg per mg (Merck Index)		
Lead (Pb)	81 KILOGRAMS DISCHARGED	Possible lead paint use (FDR p 3)	
	94 YEARS DISCHARGED		
	8280 MG/KG (MAX CONCENTRATION)	Sample D6A (1-1.5 ft bgs) (PAP-00086846)	
	0.000001 kg per mg (Merck Index)		
Mercury (Hg)	527 KILOGRAMS DISCHARGED	No info on storage or use of mercury on site (FDR)	
	94 YEARS DISCHARGED		
	32.9 MG/KG (MAX CONCENTRATION)	Sample BDFDS2 (1 ft bgs) (PAP-00086846)	
	0.000001 kg per mg (Merck Index)		
	2 KILOGRAMS DISCHARGED		

PAHs (listed in Benzo(a)pyrene Equivalent conversion table)

94 YEARS DISCHARGED

17.5 MG/KG (TOTAL PAH MAX CONCENTRATION)

0.000001 kg per mg (Merck Index)

1 KILOGRAMS DISCHARGED

PAHs (others detected)

94 YEARS DISCHARGED

4 MG/KG (TOTAL PAH MAX CONCENTRATION)

0.000001 kg per mg (Merck Index)

0 KILOGRAMS DISCHARGED

PCBs

53 YEARS DISCHARGED

14.9 MG/KG MAX CONCENTRATION)

0.000001 kg per mg (Merck Index)

1 KILOGRAMS DISCHARGED

DDx

0 YEARS DISCHARGED within DDx Timeline

0.148 MG/KG (MAX CONCENTRATION)

3.785 L per gallon (Merck Index)

0.000001 kg per mg (Merck Index)

0 KILOGRAMS DISCHARGED

Dieldrin

94 YEARS DISCHARGED within Dieldrin Timeline

0.036 MG/KG (MAX CONCENTRATION)

3.785 L per gallon (Merck Index)

0.000001 kg per mg (Merck Index)

0 KILOGRAMS DISCHARGED

Dioxins/Furans

NONE FOUND IN AVAILABLE DOCUMENTATION

0 YEARS DISCHARGED

0 MG/KG (MAX CONCENTRATION)

0.000001 kg per mg (Merck Index)

0 calc kg COC discharged

SUMMARY CMASS ESTIMATES:

80.77 kg Copper

526.62 kg Lead

2.09 kg Mercury

1.11 kg PAHs (Benzo(a)pyrene Equivalent)

0.26 kg PAHs (Other)

0.95 kg PCBs

0.00 kg DDx

0.00 kg Dieldrin

0.00 kg Dioxins/Furans

611.81 MASS (KG) DISCHARGED FROM SURFACE SOIL

Total concentration of PAH compounds for Benzo(a)pyrene Equivalent
<https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample>

Naphthenic-base crude oil used on site (FDR p 3)

Data below the Benzo(a)pyrene Equivalent Table

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	12.300	1.0	12.3000
Benzo(a)anthracene	8.840	0.1	0.8840
Benzo(b)fluoranthene	22.000	0.1	2.2000
Benzo(k)fluoranthene	8.380	0.01	0.0838
Chrysene	17.400	0.001	0.0174
Dibenz(a,h)anthracene	1.580	1.0	1.5800
Indeno(1,2,3-cd)pyrene	4.160	0.1	0.4160

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents =

17.5

Possible use of PCB-containing cutting oils (FDR p 3)

Sample 112A (0.5-1 ft bgs), combined Aroclor-1254 and -1260 (PAP-00086879)

All PAH data from Sample Y-22 (1-1.5 ft bgs)
 (PAP-00348613)

Fluorene	0.29
Naphthalene	0
Phenanthrene	0.609
Anthracene	1.4
Acenaphthene	0
Acenaphthylene	1.78
SUM	4.079

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

CBS Corporation

95 Orange Street

Newark

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Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
9.516E-5	0.0%	Historically Compliant or No Evidence	During a 1996 inspection of the facility (CBS owned/operated the site 1889-1984), inspection of the Transformer Areas showed oil staining and an actual puddle of oil was apparent on the concrete floor next to Transformer A2. Oil staining was also evident on the floor near the rear of the transformer room. Floor drains were observed (PAP-00347568). A 55-gallon drum of boiler treatment chemical was stored on top of, and leaking into a trench in the engine room. Miscellaneous oils in 55-gallon drums were also stored above the trenches. A leaking oil pump was observed on top of a trench in front of the active boiler in the engine room. Oil staining was also observed on the concrete floor in front of one of the inactive boilers (PAP-00347568). Given date of inspection, difficult to ascertain whether actions resulting in contamination were during CBS operations on site.	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	7.613E-5

AP_ABS

7.613E-5

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

CBS Corporation

95 Orange Street

Newark

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Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
4.790E-2	0.0%	Historically Compliant or No Evidence	During a 1996 inspection of the facility (CBS owned/operated the site 1889-1984), inspection of the Transformer Areas showed oil staining and an actual puddle of oil was apparent on the concrete floor next to Transformer A2. Oil staining was also evident on the floor near the rear of the transformer room. Floor drains were observed (PAP-00347568). A 55-gallon drum of boiler treatment chemical was stored on top of, and leaking into a trench in the engine room. Miscellaneous oils in 55-gallon drums were also stored above the trenches. A leaking oil pump was observed on top of a trench in front of the active boiler in the engine room. Oil staining was also observed on the concrete floor in front of one of the inactive boilers (PAP-00347568). Given date of inspection, difficult to ascertain whether actions resulting in contamination were during CBS operations on site.	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	3.832E-2

AP_ABS

3.832E-2

Allocation Facility Cmass Calculation

Celanese Ltd./CAN Holdings LLC

226 Rome Street

Newark

NJ

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Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	-	100.00%	-	11.93%	-	100.00%	-	0	1.018817E-2	0
Lead	100.00%	-	100.00%	-	11.93%	-	100.00%	-	0	1.018817E-2	0
Mercury	100.00%	-	100.00%	-	11.93%	-	100.00%	-	0	1.018817E-2	0
HPAHs	100.00%	-	100.00%	158.09	11.93%	1,304.21	100.00%	-	313.67	1.018817E-2	3.2
LPAHs	100.00%	-	100.00%	105.39	11.93%	869.48	100.00%	-	209.11	1.018817E-2	2.13
PCBs	100.00%	-	100.00%	-	11.93%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	11.93%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	11.93%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	11.93%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Celanese Ltd./CAN Holdings LLC

226 Rome Street

Newark

NJ

07105

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0	0	0
Lead	0.01	3,200,000.00	0	0	0
Mercury	0.95	42,000.00	0	0	0
HPAHs	0.05	240,000.00	3.2	1.332E-5	6.658E-7
LPAHs	0.01	170,000.00	2.13	1.253E-5	1.253E-7
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calculation

Celanese Ltd./CAN Holdings LLC

226 Rome Street

Newark

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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	0	0	0	0	0
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	0	0	0	0	0
Mercury	0.95	42,000.00	4,322.53	41,955.96	0	0	0	0	0
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	7.217E-5	3.2	14.12	7.217E-5	3.608E-6
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	6.941E-5	2.13	9.67	6.941E-5	6.941E-7
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Celanese Ltd./CAN Holdings LLC

226 Rome Street

Newark

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Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Polk St.	CSO	0.10%	69.05%	
2	Polk St.	Bypass	11.86%	100.00%	

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	No information on discharges to sanitary sewer or river.
	# hours/per day discharged	Facility was a support facility to main plant and performed
	#days/week discharged	- cellulose acetate recycling
	#weeks/yr discharged	- camphor refinement
46,883,750	calc gal/yr discharge	- production of lindol
		After 1924 construction of PVSC sewer line effluent flowed to treatment facility on Wilson Ave and discharged to NY Harbor
1954	Yr Ops started	Estimated based on Ferry Street
1996	Yr Ops ceased	Since ancillary Facility assumed flow to be 50% of Ferry Street
42	calc #yrs facility operated	
Copper (Cu)		
42	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
42	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
42	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
42	#yrs facility discharged	Based on Celanese Ferry Street
3.27	calc mg/L O&G	
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
0.20	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
1,462.30	calc kg COC discharged	
LPAHs		
42	#yrs facility discharged	
3.27	calc mg/L O&G	Based on Celanese Ferry Street
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
0.13	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
974.87	calc kg COC discharged	
PCBs		
24	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
19	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
34	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
42	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
43	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
32	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
22	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
1,462.30	kg HPAHs	
974.87	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	

-	kg Dioxins/Furans	
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Allocation Facility Cmass Calculation

Celanese Ltd./CAN Holdings LLC

290 Ferry Street

Newark

NJ

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Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	-	100.00%	-	11.93%	-	100.00%	195.1	195.1	1.018817E-2	1.99
Lead	100.00%	-	100.00%	-	11.93%	-	100.00%	83.2	83.18	1.018817E-2	0.85
Mercury	100.00%	-	100.00%	-	11.93%	-	100.00%	-	0.02	1.018817E-2	0
HPAHs	100.00%	-	100.00%	3,804.65	11.93%	5,483.17	100.00%	19,846.6	24,305.29	1.018817E-2	247.63
LPAHs	100.00%	-	100.00%	2,536.43	11.93%	3,655.45	100.00%	13,231.0	16,203.53	1.018817E-2	165.08
PCBs	100.00%	-	100.00%	-	11.93%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	11.93%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	11.93%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	11.93%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Celanese Ltd./CAN Holdings LLC

290 Ferry Street

Newark

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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	1.99	9.465E-7	6.531E-7
Lead	0.01	3,200,000.00	0.85	2.648E-7	2.648E-9
Mercury	0.95	42,000.00	0	5.094E-9	4.839E-9
HPAHs	0.05	240,000.00	247.63	1.032E-3	5.159E-5
LPAHs	0.01	170,000.00	165.08	9.711E-4	9.711E-6
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calculation

Celanese Ltd./CAN Holdings LLC

290 Ferry Street

Newark

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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	7.044E-4	1.99	1,477.32	7.044E-4	4.861E-4
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	2.882E-4	0.85	921.52	2.882E-4	2.882E-6
Mercury	0.95	42,000.00	4,322.53	41,955.96	4.858E-6	0	0.2	4.858E-6	4.615E-6
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	5.592E-3	247.63	1,094.47	5.592E-3	2.796E-4
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	5.378E-3	165.08	749.2	5.378E-3	5.378E-5
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Celanese Ltd./CAN Holdings LLC

290 Ferry Street

Newark

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Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Polk St.	CSO	0.10%	69.05%	
2	Polk St.	Bypass	11.86%	100.00%	

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	
	# hours/per day discharged	
	#days/week discharged	
	#weeks/yr discharged	
150,839,000	calc gal/yr discharge (PAP0010558)	1972 PVSC Waste Effluent Survey for discharge in 1971 150,839,000 gal to sanitary & 786,836,000 gal to Storm Sewer
1890	Yr Ops started	
1973	Yr Ops ceased	
83	calc #yrs facility operated	
Copper (Cu)		
83	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
83	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
83	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
83	#yrs facility discharged	
3.27	calc mg/L O&G (PAP0010558)	1972 PVSC Waste Effluent Survey for discharge in 1971: Floatable oils 1.0mg/l, 4.6 mg/l and 4.2 mg/l
10%	% O&G that is considered PAHs	1987/88 found report found in sewer sediment: 1.944 mg/k Benzo(a)anthracene
60%	% PAHs considered as HPAHs	2.308 mg/kg Benzo(a)Pyrene
0.196	calc mg/L HPAHs	1.743 mg/kg Benzo (b) Fluoranthene
3.785	L per gallon (Merck Index)	2.647 mg/kg Benzo (k) Fluoranthene
0.000001	kg per mg (Merck Index)	2.171 mg/kg Chrysene
9,287.82	calc kg COC discharged	3.522 mg/kg Pyrene
LPAHs		
83	#yrs facility discharged	
3.27	calc mg/L O&G (PAP0010558)	1972 PVSC Waste Effluent Survey for discharge in 1971: Floatable oils 1.0mg/l, 4.6 mg/l and 4.2 mg/l
10%	% O&G that is considered PAHs	1987/88 found report found in sewer sediment: 1.944 mg/k Benzo(a)anthracene
40%	% PAHs considered as LPAHs	2.308 mg/kg Benzo(a)Pyrene
0.13	calc mg/L LPAHs	1.743 mg/kg Benzo (b) Fluoranthene
3.785	L per gallon (Merck Index)	2.647 mg/kg Benzo (k) Fluoranthene
0.000001	kg per mg (Merck Index)	2.171 mg/kg Chrysene
6,191.88	calc kg COC discharged	3.522 mg/kg Pyrene
PCBs		
45	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
33	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
24	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
83	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
28	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
29	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
24	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
9,287.82	kg HPAHs	
6,191.88	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	
	# days/week discharged	
	# weeks/yr discharged	1972 PVSC Waste Effluent Survey for discharge in 1971
786,836,000	# gals/yr directly discharged	150,839,000 gal to sanitary & 786,836,000 gal to Storm Sewer
	4.08 ft; 30yr average annual precipitation per Rutgers information	assumed to be connected to PVSC in 1924
	acres	
43,560	ft2 per acre	
	1890 Yr Ops started	
1924	Yr Ops ceased	
34	calc #yrs facility operated	
Copper (Cu)		
34	#yrs facility discharged	1987/88 found in sewer sediment @ 90.2 mg/kg and 6140 mg/kg
-	calc mg/L COC discharged	62633.25 kg x ((6140+90.2)/2) mg/kg x .000001 kg/mg = 195.1 kg Cu
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
195.10	calc kg COC discharged	
Lead (Pb)		
34	#yrs facility discharged	1987/88 found in sewer sediment @ 2232 mg/k and 424 mg/kg
	calc mg/L COC discharged	62633.25 kg x ((2232+424)/2) mg/kg x .000001 kg/mg = 83.18 kg Pb
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
83.2	calc kg COC discharged	
Mercury (Hg)		
34	#yrs facility discharged	1987/88 found in sewer sediment @ 0.253 mg/kg and 0.408 mg/kg
	calc mg/L COC discharged	62633.25 kg x ((.253+.408)/2) mg/kg x .000001 kg/mg = .021 kg Hg
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0.021	calc kg COC discharged	
HPAHs		
34	#yrs facility discharged	1972 PVSC Waste Effluent Survey for discharge in 1971: Floatable oils 1.0mg/l, 4.6 mg/l and 4.2 mg/l
3.27	calc mg/L Q&G (PAP0010558)	
10%	% Q&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
0.196	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
19,846.553	calc kg COC discharged	
LPAHs		
34	#yrs facility discharged	1972 PVSC Waste Effluent Survey for discharge in 1971: Floatable oils 1.0mg/l, 4.6 mg/l and 4.2 mg/l
3.27	calc mg/L Q&G (PAP0010558)	
10%	% Q&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
0.13	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
13,231.035	calc kg COC discharged	
PCBs		
-4	#yrs facility discharged within PCBs Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
-15	#yrs facility discharged within DDx Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
-25	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
34	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
-21	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
-20	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
-25	#yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
195.10	kg Copper	
83.18	kg Lead	
0.02	kg Mercury	
19,846.55	kg HPAHs	
13,231.04	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Allocation Facility Cmass Calculation

Celanese Ltd./CAN Holdings LLC

354 Doremus Avenue

Newark

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Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	-	100.00%	-	0.00%	55.46	100.00%	2.3	2.32	1.018817E-2	0.02
Lead	100.00%	-	100.00%	-	0.00%	277.31	100.00%	10.6	10.59	1.018817E-2	0.11
Mercury	100.00%	4.4	100.00%	-	0.00%	1.66	100.00%	-	4.4	1.018817E-2	0.04
HPAHs	100.00%	36.46	100.00%	-	0.00%	-	100.00%	-	36.46	1.018817E-2	0.37
LPAHs	100.00%	199.4	100.00%	-	0.00%	44.37	100.00%	0.5	199.93	1.018817E-2	2.04
PCBs	100.00%	19.81	100.00%	-	0.00%	0.23	100.00%	0.9	20.71	1.018817E-2	0.21
DDx	100.00%	1.39	100.00%	-	0.00%	-	100.00%	-	1.41	1.018817E-2	0.01
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Celanese Ltd./CAN Holdings LLC

354 Doremus Avenue

Newark

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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0.02	1.124E-8	7.758E-9
Lead	0.01	3,200,000.00	0.11	3.371E-8	3.371E-10
Mercury	0.95	42,000.00	0.04	1.067E-6	1.014E-6
HPAHs	0.05	240,000.00	0.37	1.548E-6	7.739E-8
LPAHs	0.01	170,000.00	2.04	1.198E-5	1.198E-7
PCBs	12.87	26,000.00	0.21	8.116E-6	1.045E-4
DDx	1.37	27,000.00	0.01	5.326E-7	7.297E-7
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calculation

Celanese Ltd./CAN Holdings LLC

354 Doremus Avenue

Newark

NJ

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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	8.368E-6	0.02	17.55	8.368E-6	5.774E-6
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	3.669E-5	0.11	117.29	3.669E-5	3.669E-7
Mercury	0.95	42,000.00	4,322.53	41,955.96	1.018E-3	0.04	42.71	1.018E-3	9.670E-4
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	8.389E-6	0.37	1.64	8.389E-6	4.194E-7
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	6.636E-5	2.04	9.24	6.636E-5	6.636E-7
PCBs	12.87	26,000.00	20,066.54	25,795.56	1.032E-3	0.21	26.63	1.032E-3	1.328E-2
DDx	1.37	27,000.00	2,516.93	26,974.36	5.608E-4	0.01	15.13	5.608E-4	7.683E-4
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Celanese Ltd./CAN Holdings LLC

354 Doremus Avenue

Newark

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Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	Flowrates from PAS-00071742 from 1980, 1986 and 1991
	# hours/per day discharged	All discharges to PVSC including surface drainage
7	#days/week discharged	
24	#weeks/yr discharged	
17,038,497	calc gal/yr discharge	
1954	Yr Ops started	
1996	Yr Ops ceased	
43	calc #yrs facility operated	
Copper (Cu)		
43	#yrs facility discharged	Sampling Effluent Data, 1981
0.02	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
55.46	calc kg COC discharged	
Lead (Pb)		
43	#yrs facility discharged	Sampling Effluent Data, 1981
0.10	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
277.31	calc kg COC discharged	
Mercury (Hg)		
43	#yrs facility discharged	Sampling Effluent Data, 1981
0.0006	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
1.66	calc kg COC discharged	
HPAHs		
43	#yrs facility discharged	
	calc mg/L O&G	
10%	% O&G that is considered PAHs	
50%	% COC in O&G considered as PAHs	
-	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
LPAHs		
43	#yrs facility discharged	Sampling Effluent Data, 1981
	calc mg/L O&G	
10%	% O&G that is considered PAHs	
50%	% COC in O&G considered as PAHs	
0.016	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
44.37	calc kg COC discharged	
PCBs		
24	#yrs facility discharged within PCBs Timeline	Sampling Effluent Data, 1981
0.00015	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0.23	calc kg COC discharged	
DDx		
19	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
34	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
43	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
43	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
32	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
22	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
55.46	kg Copper	
277.31	kg Lead	
1.66	kg Mercury	
-	kg HPAHs	
44.37	kg LPAHs	
0.232	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	
	# days/week discharged	
	# weeks/yr discharged	
6,626,614	# gals/yr directly discharged	
4.08	ft; 30yr average annual precipitation per Rutgers information	
43,560	ft2 per acre	
9.96	acres	Acreage revised
50%	Percent Precip to River	
1954	Yr Ops started	
1996	Yr Ops ceased	
42	calc #yrs facility operated	
Copper (Cu)		
42	#yrs facility discharged	Plum Creek COC ranges
0.0022	calc mg/L COC discharged	PAS-00072645-49, 56
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
2.32	calc kg COC discharged	
Lead (Pb)		
42	#yrs facility discharged	Plum Creek COC ranges
0.010	calc mg/L COC discharged	PAS-00072645-49, 56
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
10.59	calc kg COC discharged	
Mercury (Hg)		
42	#yrs facility discharged	NON DETECT
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
42	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
LPAHs		
42	#yrs facility discharged	Plum Creek COC ranges
0.0005	calc mg/L COC discharged	PAS-00072645-49, 56
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0.5267	calc kg COC discharged	
PCBs		
24	#yrs facility discharged within PCBs Timeline	Plum Creek COC ranges
0.0015	calc mg/L COC discharged	PAS-00072645-49, 56
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0.90	calc kg COC discharged	
DDx		
19	#yrs facility discharged within DDx Timeline	Plum Creek COC ranges
0.00045	calc mg/L COC discharged	PAS-00072645-49, 56
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0.0214	calc kg COC discharged	
Dieldrin		
34	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
42	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
43	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
32	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
22	#yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
2.3176	kg Copper	
10.5870	kg Lead	
-	kg Mercury	
-	kg HPAHs	
0.5267	kg LPAHs	
0.9029	kg PCBs	
0.0214	kg DDx	
-	kg Dieldrin	

-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
	4.08333333 FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University.
	27 ACRES - TOTAL SITE AREA (acres)	Two areas: the East Farm, a 7.5 acre lot situated east of Doremus Avenue and abutting Newark Bay; and, the West Farm, a 19.3 acre lot located west of Doremus Avenue (FDR page 1-2).	
	11 ACRES - AFFECTED AREA	According to the facility layout map on page 4 of the FDR, the site appears to be about 40% unpaved. Therefore, the estimated affected area for this calcuation is about 10.8 or 11 acres	
	4,046.86 METERS ² /ACRE		
	44,515 METERS ² (AFFECTED AREA)		
	0.0001 METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
	4 METERS ³ /YEAR (ERODED SOIL VOLUME)	VOLUME/YEAR DISCHARGED TO DITCHES AND PLUM CREEK	
	1954 Year site operations began	Celanese purchased the eastern portion of the site in 1954 and the purchased the West Farm in 1957 (FDR page 1)	
	1996 Year site operations ceased	FDR page 1	
	42 NUMBER YEARS DISCHARGE		
	187 METERS ³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)		
	1,963 KG/M ³ SOIL DENSITY	Fill reported as brown to black fine-to coarse-grained sand with some silt or clayey silt. Gravel-sized particles are frequently present in the form of glass, ceramic, brick, plastic, metal or wood fragments (PAP-00020891). Bulk density range for silty sand and gravel is 1442 KG/M3 to 2483 KG/M3, so use average. (http://structx.com/Soil_Properties_002.html)	
	366,919 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)		
Copper (Cu)	42 YEARS DISCHARGED		
	0 MG/KG (MAX CONCENTRATION)	Copper was found in surface soil at AEC 36 at a max concentration of 447 mg/kg in soil boring 700A-3603-SB03 (depth of 0.0 to 0.5 ft bgs) (PAP-00020849 PDF page 108). Set to 0 since less than HF.	
	0.000001 kg per mg (Merck Index)		
	0 KILOGRAMS DISCHARGED		
Lead (Pb)	42 YEARS DISCHARGED		
	0 MG/KG (AVERAGE CONCENTRATION)	Lead was found in surface soil at sample ID 700A-3604-SB01 at a max concentration of 3670 mg/kg (depth 0.0-0.5 ft bgs) PAP-00020849 pdf page 108. Set to 0 since less than HF.	
	0.000001 kg per mg (Merck Index)		
	0 KILOGRAMS DISCHARGED		
Mercury (Hg)	42 YEARS DISCHARGED		
	12.0 MG/KG (MAX CONCENTRATION)	Mercury was found in surface soil at sample 700A-3603-SB02 at a max concentratiton of 2.8 mg/kg (depth 2.5-3.0 ft bgs) PAP-00020849, pdf page 108. Due to the density of mercury, a deeper sample may be more representative because sampling was not conducted immediately after the release occurred.	
	0.000001 kg per mg (Merck Index)		
	4 KILOGRAMS DISCHARGED		

PAHs (listed in Benzo(a)pyrene Equivalent conversion table)	
42 YEARS DISCHARGED	
99.4 MG/KG (TOTAL PAH AVERAGE CONCENTRATION)	
0.000001 kg per mg (Merck Index)	
36 KILOGRAMS DISCHARGED	
PAHs (others detected)	
42 YEARS DISCHARGED	
400 MG/KG (TOTAL PAH MAX CONCENTRATION)	
0.000001 kg per mg (Merck Index)	
199 KILOGRAMS DISCHARGED	
PCBs	
42 YEARS DISCHARGED	
54 MG/KG (MAX OF REPORTED CONCENTRATIONS)	
0.000001 kg per mg (Merck Index)	
20 KILOGRAMS DISCHARGED	

DDx	42 YEARS DISCHARGED within DDx Timeline
	0.076 MG/KG (MAX CONCENTRATION)
	3.785 L per gallon (Merck Index)
	0.000001 kg per mg (Merck Index)
	1 KILOGRAMS DISCHARGED

SUMMARY CMASST ESTIMATES:
0.00 kg Copper
0.00 kg Lead
4.40 kg Mercury
36.46 kg PAHs (Benzo(a)pyrene Equivalent)
199.40 kg PAHs (Other)
19.81 kg PCBs
1.39 kg DDx

261.47 MASS (KG) DISCHARGED FROM SURFACE SOIL

Total concentration of PAH compounds for Benzo(a)pyrene Equivalent
<https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample>.

Sum of Benzo(a)pyrene Equivalent conversion concentrations using maximum concentrations listed in FDR TABLE, PAGE 18

Sum of Other LMW PAHs = Acenaphthene, Acenaphthylene, Anthracene, Fluorene, Naphthalene, and Phenanthrene. Concentrations from AEC 59 in surface soil (FDR page 18)

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	62.000	1.0	62.0000
Benzo(a)anthracene	82.000	0.1	8.2000
Benzo(b)fluoranthene	68.000	0.1	6.8000
Benzo(k)fluoranthene	29.000	0.01	0.2900
Chrysene	77.000	0.001	0.0770
Dibenz(a,h)anthracene	18.000	1.0	18.0000
Indeno(1,2,3-cd)pyrene	40.000	0.1	4.0000

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = 99.4

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Celanese Ltd./CAN Holdings LLC

290 Ferry Street Newark NJ 07105

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
6.196E-5	0.0%	Historically Compliant or No Evidence	No information on violations or sloppy practices was identified in the available file material.	-15.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities 5% Failure to fully cooperate with conduct of the allocation or requests for related information (Ceased participation in allocation in December 2019)	5.267E-5

354 Doremus Avenue Newark NJ 07105

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
1.064E-4	5.0%	Occasional Noncompliance	A 1969 Administrative Order issued for discharging industrial waste and "other polluting matter" into the Passaic River (PAS-00071180-81). On May 17, 1991, the facility received a NOV for failure to monitor their effluent for lead to comply with General Pretreatment Regulations (PAS-00071202). Older Celanese employees noted that in the mid-1970s, persons were sometimes seen dumping materials into Plum Creek north of the northwest corner of the Celanese property at night. Employees stated that a certain material deposited was a thick white liquid (PAP-00021048). No evidence of Involvement of Celanese staff.	-15.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities 5% Failure to fully cooperate with conduct of the allocation or requests for related information (Ceased participation in allocation in December 2019)	9.577E-5

226 Rome Street Newark NJ 07105

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
7.911E-7	0.0%	Historically Compliant or No Evidence	No information on violations or sloppy practices was identified in the available file material.	-15.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities 5% Failure to fully cooperate with conduct of the allocation or requests for related information (Ceased participation in allocation in December 2019)	6.724E-7

AP_ABS

1.491E-4

ARR2188

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Celanese Ltd./CAN Holdings LLC

290 Ferry Street Newark NJ 07105

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
8.269E-4	0.0%	Historically Compliant or No Evidence	No information on violations or sloppy practices was identified in the available file material.	-15.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities 5% Failure to fully cooperate with conduct of the allocation or requests for related information (Ceased participation in allocation in December 2019)	7.029E-4

354 Doremus Avenue Newark NJ 07105

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
1.503E-2	5.0%	Occasional Noncompliance	A 1969 Administrative Order issued for discharging industrial waste and "other polluting matter" into the Passaic River (PAS-00071180-81). On May 17, 1991, the facility received a NOV for failure to monitor their effluent for lead to comply with General Pretreatment Regulations (PAS-00071202). Older Celanese employees noted that in the mid-1970s, persons were sometimes seen dumping materials into Plum Creek north of the northwest corner of the Celanese property at night. Employees stated that a certain material deposited was a thick white liquid (PAP-00021048). No evidence of Involvement of Celanese staff.	-15.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities 5% Failure to fully cooperate with conduct of the allocation or requests for related information (Ceased participation in allocation in December 2019)	1.352E-2

226 Rome Street Newark NJ 07105

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
4.302E-6	0.0%	Historically Compliant or No Evidence	No information on violations or sloppy practices was identified in the available file material.	-15.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities 5% Failure to fully cooperate with conduct of the allocation or requests for related information (Ceased participation in allocation in December 2019)	3.657E-6

AP_ABS

1.423E-2

ARR2189

Allocation Facility Cmass Calculation

Chevron Environmental Management Co.

86 Doremus Avenue

Newark

NJ

07105

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COCA%	COC Historic Cmass
Copper	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Lead	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Mercury	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
HPAHs	100.00%	3.18	100.00%	-	0.00%	539.59	100.00%	-	3.18	1.018817E-2	0.03
LPAHs	100.00%	3.71	100.00%	-	0.00%	359.73	100.00%	62.3	66.01	1.018817E-2	0.67
PCBs	100.00%	8.02	100.00%	-	0.00%	-	100.00%	-	8.02	1.018817E-2	0.08
DDx	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Chevron Environmental Management Co.

86 Doremus Avenue

Newark

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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0	0	0
Lead	0.01	3,200,000.00	0	0	0
Mercury	0.95	42,000.00	0	0	0
HPAHs	0.05	240,000.00	0.03	1.350E-7	6.750E-9
LPAHs	0.01	170,000.00	0.67	3.956E-6	3.956E-8
PCBs	12.87	26,000.00	0.08	3.143E-6	4.045E-5
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calculation

Chevron Environmental Management Co.

86 Doremus Avenue

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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	0	0	0	0	0
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	0	0	0	0	0
Mercury	0.95	42,000.00	4,322.53	41,955.96	0	0	0	0	0
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	7.316E-7	0.03	0.14	7.316E-7	3.658E-8
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	2.191E-5	0.67	3.05	2.191E-5	2.191E-7
PCBs	12.87	26,000.00	20,066.54	25,795.56	3.997E-4	0.08	10.31	3.997E-4	5.144E-3
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Chevron Environmental Management Co.

86 Doremus Avenue

Newark

NJ

07105

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	West Yard Sanitary and Storm water discharge was to the PVSC. No evidence of any permit
	# hours/per day discharged	for these discharges
	#days/week discharged	
	#weeks/yr discharged	Assume similar flow as for direct discharge to the Passaic River
9,600,000	calc gal/yr discharge	
1951	Yr Ops started	
1984	Yr Ops ceased	
33	calc #yrs facility operated	
Copper (Cu)		
33	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
33	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
33	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAhs		
33	#yrs facility discharged	1980 Permit NJ0026034 daily max for Oil and Grease =15mg/l
7.50	calc mg/L O&G PAP00084091	assume 7.5 mg/l in discharge
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
0.45	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
539.59	calc kg COC discharged	
LPAHs		
33	#yrs facility discharged	1980 Permit NJ0026034 daily max for Oil and Grease =15mg/l
7.50	calc mg/L O&G PAP00084091	assume 7.5 mg/l in discharge
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
0.30	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
359.73	calc kg COC discharged	
PCBs		
27	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
22	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
34	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
33	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
34	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
34	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
25	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
539.59	kg HPAHs	
359.73	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	2014 PA/SI Report states NJPDES Permit indicates oil/water separator discharges directly to Passaic River
	# days/week discharged	No Operational Effluent or Process Discharge
	# weeks/yr discharged	Assume storm water flow only directly to river
1,663,307	# gals/yr directly discharged PAP00084091	
4.08	ft; 30yr average annual precipitation per Rutgers information	
43,560	ft ² per acre	
2.50	acres	Final FDR
50%	Percent Precip to River	
1951	Yr Ops started	
1984	Yr Ops ceased	
33	calc #yrs facility operated	
Copper (Cu)		
33	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
33	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
33	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAhs		
33	#yrs facility discharged	1980 Permit NJ0026034 daily max for Oil and Grease =15mg/l
7.50	calc mg/L O&G PAP00084091	assume 7.5 mg/l in discharge
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
0.45	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
93.49	calc kg COC discharged	
LPAHs		
33	#yrs facility discharged	
7.50	calc mg/L O&G PAP00084091	1980 Permit NJ0026034 daily max for Oil and Grease =15mg/l
10%	% O&G that is considered PAHs	assume 7.5 mg/l in discharge
40%	% PAHs considered as LPAHs	
0.30	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
62.33	calc kg COC discharged	
PCBs		
27	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
22	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
34	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
33	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
34	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
34	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
25	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
-	kg HPAHs	
62.30	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	

- kg Dioxins/Furans

Discharge Calcs	Direct Discharge Information	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES																																
	4.08333333 FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University																																
	14.5 ACRES - TOTAL SITE AREA (acres)																																		
	4.5 ACRES - AFFECTED AREA	Area A consists of 2.5 undeveloped acres located south of the West Yard (FDR p 2). Additional 2 acres of bare soil surrounding the tanks in the West and East Yard combined were estimated (Google Earth).	Facility is adjacent to Passaic River (East Yard of property boundary abuts river). FDR page 1.																																
	4,046.86 METERS ² /ACRE																																		
	18,211 METERS ² (AFFECTED AREA)																																		
	0.0001 METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.																																	
	2 METERS ³ /YEAR (ERODED SOIL VOLUME)	VOLUME/YEAR DISCHARGED TO PASSAIC RIVER																																	
	1951 Year site operations began	Operated and owned by Chevron from July 1951 to December 1984 (FDR p 1)																																	
	1984 Year ownership ceased	Texaco aquired Getty Oil Company in 1984, property was transferred to Power Test Realty Company Limited Partnership (FDR p 1)																																	
	33.5 NUMBER YEARS DISCHARGE																																		
	61.0064145 METERS ³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)																																		
	1962.5 KG/M3 SOIL DENSITY	Shallow borings were composed of a mixture of sand, silt, and gravel with varying amounts of brick fragments, rocks, wood and other debris (PAP-00066671, PDF page 8). Used "silty sand and gravel" soil type from http://structx.com/Soil_Properties_002.html . Bulk density range 1442 KG/M3 to 2483 KG/M3, so use average. Average is 1962.5 kg/m3																																	
	119,725 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)																																		
Copper (Cu)	33.5 YEARS DISCHARGED	0 MG/KG (MAX CONCENTRATION)	Maximum concentration from table on PAP-00066720 (Sample A-2A, 0-0.5 ft bgs). Set to 0 since less than HF.																																
	0.000001 kg per mg (Merck Index)	0 KILOGRAMS DISCHARGED																																	
Lead (Pb)	33.5 YEARS DISCHARGED		Concentration set at 0 mg/kg because the FDR incorrectly has a concentration of 84,200 mg/kg. The referenced source shows a maximum lead concentration of 8,200 mg/kg (PAP-00339532). This is set to 0 because it is less than HF.																																
	0 MG/KG (MAX CONCENTRATION)	0.000001 kg per mg (Merck Index)																																	
	0 KILOGRAMS DISCHARGED																																		
PAHs (listed in Benzo(a)pyrene Equivalent conversion table)	33.5 YEARS DISCHARGED	26.586 MG/KG (TOTAL PAH AVERAGE CONCENTRATION)	Total concentration of PAH compounds for Benzo(a)pyrene Equivalent https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample .																																
	0.000001 kg per mg (Merck Index)	3 KILOGRAMS DISCHARGED	Sum of Benzo(a)pyrene Equivalent conversion concentrations																																
PAHs (others detected)	33.5 YEARS DISCHARGED	MG/KG (TOTAL PAH MAX CONCENTRATION)	Data below the Benzo(a)pyrene Equivalent Table																																
	31.02	0.000001 kg per mg (Merck Index)	Sum of other detected PAHs from Figure PAP-00066671, pdf pg 38 from Sample ID A-2A (0.0-0.5 ft).																																
	4 KILOGRAMS DISCHARGED		Maximum concentrations from Figure of PAH concentrations remaining in soil at Area A (surface sample A-2A (0.0-0.5 ft) (PAP-00066671, pdf pg 38). Historic fill was not a consideration for PAH concentrations for the purpose of this calculation.																																
			<table border="1"> <thead> <tr> <th>Contaminant</th><th>Concentration (mg/kg)</th><th>Toxic Equivalency Factor</th><th>Benzo(a)pyrene Equivalents</th></tr> </thead> <tbody> <tr> <td>Benzo(a)pyrene</td><td>19.000</td><td>1.0</td><td>19.0000</td></tr> <tr> <td>Benzo(a)anthracene</td><td>12.000</td><td>0.1</td><td>1.2000</td></tr> <tr> <td>Benzo(b)fluoranthene</td><td>23.000</td><td>0.1</td><td>2.3000</td></tr> <tr> <td>Benzo(k)fluoranthene</td><td>26.000</td><td>0.01</td><td>0.2600</td></tr> <tr> <td>Chrysene</td><td>26.000</td><td>0.001</td><td>0.0260</td></tr> <tr> <td>Dibenz(a,h)anthracene</td><td>2.800</td><td>1.0</td><td>2.8000</td></tr> <tr> <td>Indeno(1,2,3-cd)pyrene</td><td>10.000</td><td>0.1</td><td>1.0000</td></tr> </tbody> </table>	Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents	Benzo(a)pyrene	19.000	1.0	19.0000	Benzo(a)anthracene	12.000	0.1	1.2000	Benzo(b)fluoranthene	23.000	0.1	2.3000	Benzo(k)fluoranthene	26.000	0.01	0.2600	Chrysene	26.000	0.001	0.0260	Dibenz(a,h)anthracene	2.800	1.0	2.8000	Indeno(1,2,3-cd)pyrene	10.000	0.1	1.0000
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			DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg																																
			Total Benzo(a)pyrene Equivalents = 26.6																																

PCBs

33.5 YEARS DISCHARGED

67 MG/KG (MAX OF REPORTED CONCENTRATIONS)

PCB (Aroclor 1254) highest concentration (Area 2; SW-75C at 0-0.5 ft) (FDR page 4)
Historic fill was not a consideration for PCB concentrations for the purpose of this calculation.

0.000001 kg per mg (Merck Index)
8 KILOGRAMS DISCHARGED

SUMMARY CMASS ESTIMATES:
0.00 kg Copper
0.00 kg Lead
3.18 kg PAHs (Benzo(a)pyrene Equivalent)
3.71 kg PAHs (Other)
8.02 kg PCBs

14.92 MASS (KG) DISCHARGED FROM SURFACE SOIL

Sample A-2A (PAP-00066708)	
Anthracene	2.2
Acenaphthene	1.1
Acenaphthylene	0.52
Fluorene	1.2
Naphthalene	0
Phenanthrene	26
SUM	31.02

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Chevron Environmental Management Co.

86 Doremus Avenue

Newark

NJ

07105

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
4.049E-5	0.0%	Historically Compliant or No Evidence	Although a couple spills were noted, they were minor amounts (less than 4 gallons) of diesel and gasoline (Questionnaire, p. 22; PAP-00067539-56; PAP-00066946-67). No information on NOVs identified in the available file material.	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	3.239E-5
						AP_ABS 3.239E-5

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Chevron Environmental Management Co.

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Newark

NJ

07105

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
5.144E-3	0.0%	Historically Compliant or No Evidence	Although a couple spills were noted, they were minor amounts (less than 4 gallons) of diesel and gasoline (Questionnaire, p. 22; PAP-00067539-56; PAP-00066946-67). No information on NOVs identified in the available file material.	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	4.115E-3
						AP_ABS 4.115E-3